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Ford Merchant Mill in Operation

First Unit of New Steel Works Is 14-in. Motor-Driven Continuous Mill—Some Unusual Features

ANOTHER step in carrying out the plans announced by the Ford Motor Co. several years ago of eventually making in its own plant much of the iron and steel used in its finished products was completed when it recently placed in operation a 14-in. merchant mill at its River Rouge plant, Detroit. Starting with iron ore, a considerable part of which is secured from its own mines, the Ford company has for several years operated two blast furnaces, which supply its pig iron. This company is the second of the large American consumers of steel which has undertaken to supply its own steel requirements, the other being the International Harvester Co.

With its capacity of 15,000 to 20,000 tons per month, the merchant mill is the first unit of the steel plant to be placed in operation. Other units nearing completion are an open-hearth plant, pit furnaces, a tandem blooming mill and a continuous billet mill. These will be ready to run about April 1 next. Additional mills for rolling steel in both semi-finished and finished forms will be installed, in carrying out the general plan to make steel in all its finished forms required in the manufacture of motor cars and tractors. Buildings for these additional mills already have been erected.

Billets will be purchased in the open market until the open-hearth plant is placed in operation. There are

to be four 100-ton tilting open-hearth furnaces of the Smythe type, equipped to burn oil, tar or gas, and space is provided for seven additional open-hearth furnaces or their equivalent in electric furnaces.

There are four 4-hole soaking pits, which at the start will be oil-fired. The ingots will be reduced in the blooming and billet mills to 3 $\frac{3}{8}$ -in. and 5 $\frac{1}{2}$ -in. square billets 14 ft. long for the 14-in. merchant mill. The blooming mill consists of four stands of 42-in. rolls, with provision for two additional stands, and the billet mill now nearing completion consists of four stands of 32-in. rolls.

All the rolling mill equipment was designed and built by the Morgan Construction Co., Worcester, Mass., acting as engineer for the entire work. The merchant mill is of the Morgan staggered duo type. It contains six 18-in. continuous roughing stands and four staggered 14-in. finishing stands, all two-high. It has a capacity for rolling rounds from $\frac{7}{8}$ to 3 in. in diameter, and equivalent sections in squares and flats. The last four roughing stands are arranged in pairs. The tables in front of the second and third stands rest on jacks, so that they can be vertically adjusted to the rolls.

Material is delivered from the last roughing stand to the first finishing stand by a Y-skew table and similar tables are provided for the other three finishing



Of Notched Horizontal Double Type, 360 Ft. Long, the Hotbed Has a Runout Table Through the Center, From Which Steel Is Delivered to Either Side of the Bed. The picture shows the glass-inclosed type of building construction

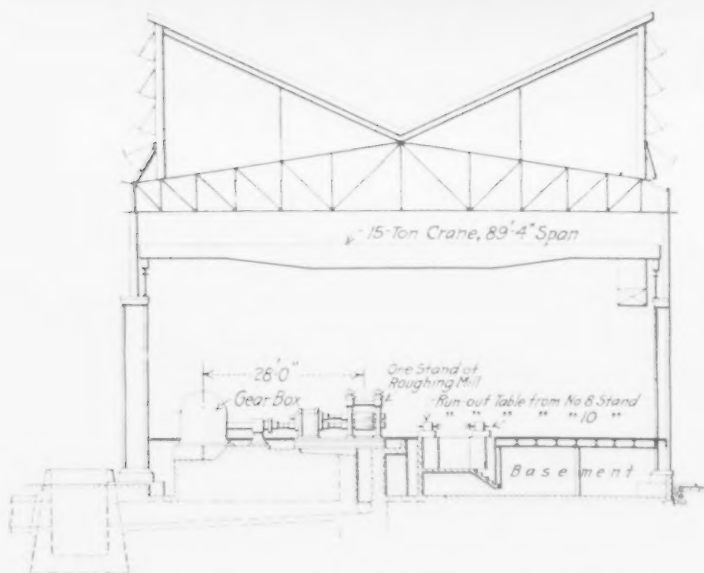
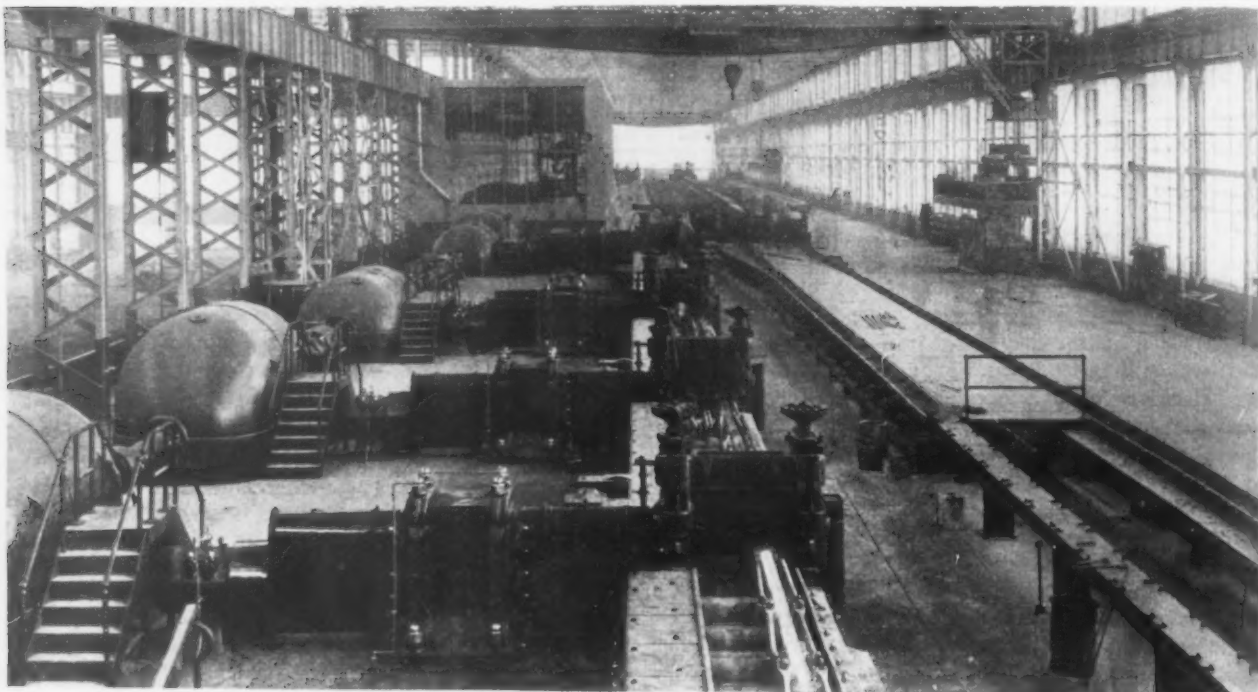
stands. After passing through No. 7 stand, the direction of the material is reversed for the pass through the next stand. In a similar way, the material is passed through the last two stands, although it may be passed through only two of the four stands, when finished in No. 8. Two or three bar sizes will be made on the same set of rolls and, as the sizes rolled will not be so numerous as are usually produced on a strictly commercial bar mill, it is not expected that it will be necessary to make more than 15 or 20 roll changes in a month.

Both the roughing and finishing stands are driven through bevel gears from one fully inclosed line shaft, 240 ft. long, directly connected through a breaking spindle and coupling to the mill motor. The bevel gears are inclosed in cast iron casings and run in a

The hotbed is of the notched horizontal double type, with a runout table through the center. It is 360 ft. long, and has a capacity for handling 13 bars on each side. By means of a switch, the steel is delivered from the runout to either side of the bed. It is entirely electrically operated and all movements are controlled from the pulpit at the lower end.

A hot saw and gage, located at one side of the hotbed at the front, adjoins the runout table from the finishing mill. This saw is utilized to cut a section from the bars that come from the finishing stand, before they pass onto the hotbed. The sawed-off piece is gaged, to keep a check on the accuracy of rolling.

Back of the hotbed delivery tables are two motor-driven bar shears, a right and a left shear, one for each side of the bed. From the gage-equipped back shear



Six 18-in. Continuous Stands Compose the Roughing Mill, the Last Four Stands Being Arranged in Pairs. At the right are the two runout tables for Nos. 8 and 10 finishing stands. Both roughing and finishing stands are driven from a single fully inclosed line shaft, the bevel gears from which, inclosed in cast iron castings, run in a spray of oil. Breaking spindles on each side of the pinion housings are inclosed in sheet steel guards. The glass-inclosed motor room appears in the background. The roll stand in the distance, at left, is No. 7, with No. 9, also in the distance, at right. Steel passing from No. 7 to No. 8, or from No. 9 to No. 10, moves toward the reader. A cross section of this portion of the plant is shown at the left

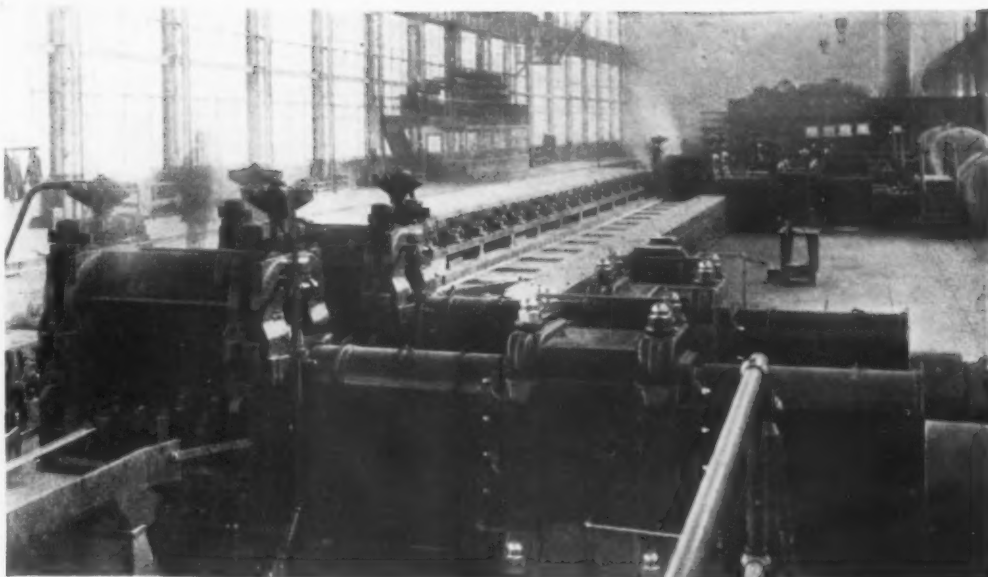
spray of oil. The breaking spindles on each side of the pinion housings are inclosed in sheet steel guards, and all other gears are fully inclosed.

All mill line shaft and other bearings are lubricated by a Bowser force-feed oiling system. The oil from the bearings is pumped up to two storage tanks above the roof truss, being filtered before reaching the tanks, and then flows by gravity from the tanks back to the bearings.

table the sheared bars are delivered by a kickoff into bins mounted on a scale platform. From the bins the finished material is handled, by an overhead 2-hook electric traveling crane, to cars on a track at the side of the building, or it is transferred to a stock building measuring 100 x 640 ft., adjoining the upper end of the mill building. The loading track, depressed below the mill building floor, is on a level with the mill yard.

Two 16 x 40 ft. continuous heating furnaces, de-

Roughing Stands No. 6 and No. 5, Looking Toward the Furnace. The remaining roughing stands, four in number, appear at left of furnace. Control pulpit is still farther to left



signed by the Morgan Construction Co. and built by the S. R. Smythe Co., Inc., Pittsburgh, serve the mill. These furnaces are fired at present with fuel oil, but are piped for the use of coke oven gas. Room is provided for a third furnace.

Both furnaces are side-charged. Billets from the chipping bay, located in the adjoining building, are delivered by an overhead crane onto a walking beam type table, which carries the stock to live rolls that convey it into the side of the furnace. Motor-driven pushers advance the billets through the heating chamber, and they pass by gravity sideways through the discharge end to the furnace runout table. The rolls at the pusher end of the furnace and the furnace roof are water cooled, the roof bricks being suspended from water-cooled pipes. An electric safety signal is located at the side of each furnace, signal lights showing which valves and ports are open.

Fuel oil for the furnaces is supplied from a central oil station, which will also supply oil or tar for the open-hearth furnaces and for the re-heating furnaces that will serve other mills. Oil is distributed through a circulating system, with steam lines to keep it hot, and it is filtered. Its pressure is boosted to 100 lb.

and its temperature is raised to 160 deg. before it reaches the burners.

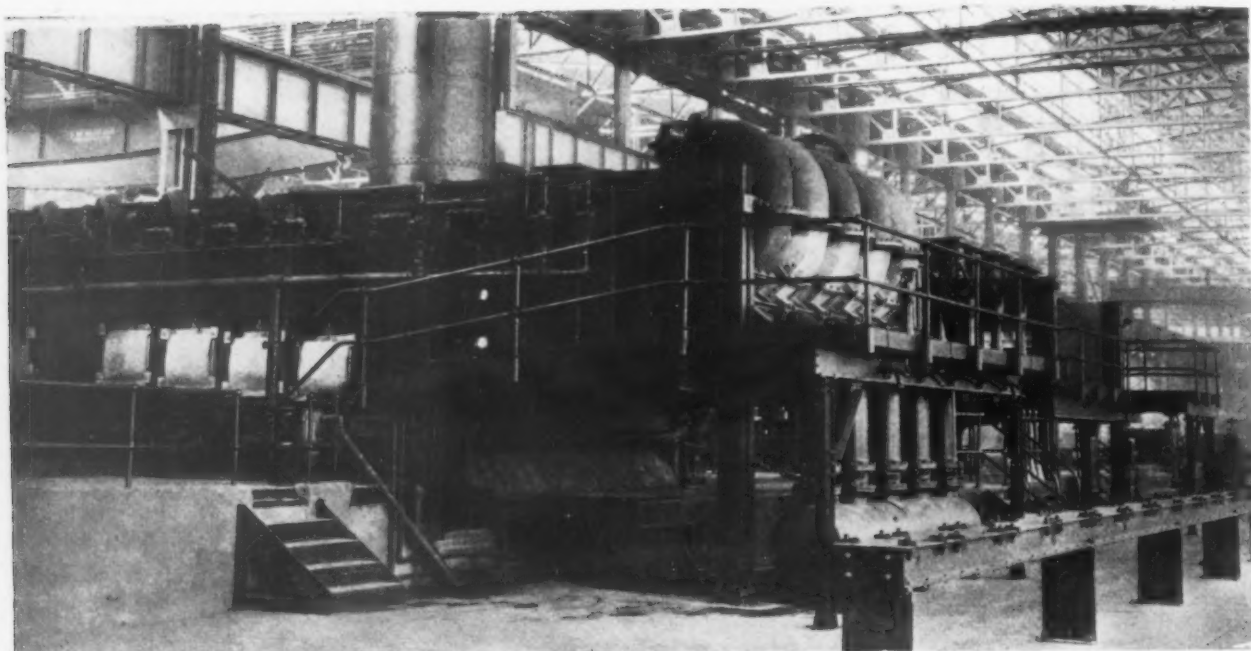
One feature of the mill building layout that attracts special interest is the motor room, centrally located near the finishing mill, completely inclosed and built according to central power substation practice. This feature of the construction has been carried a little further in the Ford plant than is usual. The motor room is inclosed in brick and steel sash and has white glazed brick interior walls and a tile floor, giving it a fine, finished appearance. This room, 35 x 180 ft., is covered by a flat roof at the same elevation as the mill crane girder. The station is served by a 60-ton crane for use in handling equipment for repairs.

All equipment in the merchant mill building is electrically driven. Primary current is delivered from the company's main power house to the substation at 13,200 volts, 3-phase, 60 cycles. Double bus lines are provided for switching from one bus to another. The prime mover in the substation is a 4500-hp., 500-volt, d.c. motor with a 250-volt separately excited field.

There are four 2000-kw. motor-generator sets. These consist of 13,200-volt synchronous motors that drive 250-volt, 2000-kw. d.c. generators. Two of these



The Merchant Mill Is of the Morgan Staggered Duo Type. There are four staggered 14-in. finishing stands. Y-skew tables are provided for deflecting material from one stand so that it will be carried directly into the next one. The reversing tables that serve the finishing mill are controlled from the balcony in the background



Two 16 by 40 Ft. Continuous Heating Furnaces, at Present Fired With Fuel Oil, Serve the Mill. Electric signal lights at the side of the furnace indicate which valves and ports are open. The small view shows that the heating furnaces are side charged. The billet is placed on a walking beam type of table, on which it is moved across the table toward the left in the picture, from which point it is discharged on live rolls which carry it into the furnace

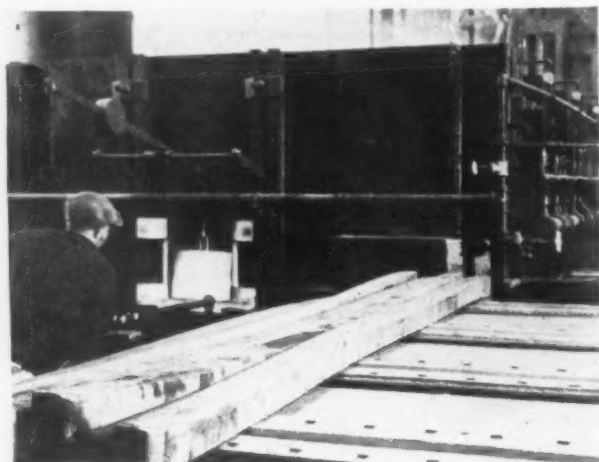
motor-generator sets are run in series and provide current at 500 volts for driving the mill motor. One motor-generator set is used to drive the mill auxiliary motors, crane motors, etc., and the fourth is an emergency set. The speed range of the mill motor is 70 to 110 r.p.m. The electrical equipment was supplied by the General Electric Co.

To provide power for this mill, and for additional demands elsewhere, the Ford company recently completed the erection of two additional turbo-generators of 30,000 kw. capacity, in its new main power house. These were designed by the company's engineers and erected in its own shops.

Entire control of the motor-generator sets in the substation is through an automatic switchboard in the motor room, but push-button control is provided at the mill for use in case of emergency. Control equipment for the mill tables and the hotbed is from three balconies along the sides of the building. On the first balcony one operator controls the runout tables from the heating furnaces and all of the roughing mill tables. Two operators control the reversing tables adjoining the finishing mill stands from a balcony opposite this mill, where they have a clear view of the mill tables. On the third balcony are starters for the hotbed motors, no operators being stationed on this balcony. At the upper end of the hotbed is a pulpit from which the handling of stock on the hotbed is controlled. The mill office is located under one of the control balconies.

The roll shop, 80 x 94 ft., is in the mill building, beyond the furnaces. A standard gage track extends from the roll shop into the basement of the mill section. Above this track, between the mill stands and the outer walls, are several 10 x 10 ft. rail-inclosed hatches. The car is spotted beneath a hatchway and rolls are raised from the cars through the hatches to the mill floor by means of the overhead crane. Spare parts are similarly handled through the hatches.

Including the roll shop, the mill building measures 94 x 1320 ft. It is 38 ft. in height to the top of the crane rail, 48 ft. to the bottom of the rooftruss, and 82 ft. to the peak of the roof. The building is served by two 15-ton electric traveling cranes, one for the mills and one for the shipping department. The roll shop is served by a 5-ton traveling crane.



One of the outstanding features of the merchant mill building is the basement under nearly the entire building, outside of the sections in which foundations for mill equipment are located. The basement is 10 ft. in height from floor to ceiling, the floor being only 2 ft. below yard level. This permits continuous window sections in the side walls, so that the interior is well lighted from outside.

In the basement are located toilet rooms, shower bath rooms, a first aid hospital for the exclusive use of the 14-in. mill department, oiling system equipment, a washed-air cooling system for the motor room, with a capacity of 50,000 cu. ft. of air per minute, and storage rooms for spare parts for the mills. These utilities, however, occupy only a small portion of the basement floor space. The remaining space will be used for various manufacturing operations, to be determined later, in connection with the manufacture of parts for various Ford products. All machinery ordinarily below the floor line in a mill building is easily accessible in this basement. Another advantage is that all kinds of piping, the electric wiring and a considerable portion of the sewers are accessible at all times. The basement is expected to contribute decidedly toward cleanliness and efficient operation.

Continuous sash, provided in the outer side walls of the mill building, eliminates corrugated steel siding and makes the interior lighting exceptionally good. A

considerable area of the roof, also, is glass covered. An observation balcony will be erected along the sides of the building so that visitors can view the operations of the mill and other equipment without getting in the way of the workmen or going to points where they might be in danger of injury.

Parallel to and at the side of the furnace and mill building is a 100 x 640 ft. building used for chipping, billet storage and inspection. A scale pit located in this building receives mill scale flushed to it through concrete troughs. A clam shell bucket transports the scale from the pit to cars, on which it is taken to the blast furnace plant.

Across a plant highway from the stock building are the spring and upset departments, where much of the output of the 14-in. mill will be forged into finished parts. The layout of the steel plant provides for the movement of material in practically a straight line from the open-hearth furnaces through the 14-in. mill, and into the two departments where it is worked up into motor car and tractor parts.

One feature of the mill that attracts attention is the use of nickel plating on nuts and oil piping. Mill and other foundation nuts, pinion housing nuts, and most of the other nuts on the mill equipment, are nickel plated. All the pipe lines for lubricating oil, above the floor, are also nickel plated. Nuts that are exposed are of the dome type, which gives the equipment an attractive appearance, and at the same time eliminates exposed bolt ends that might result in injuries.

Nickel plated nuts and piping were adopted both for appearance and for the psychological effect expected on the men to keep the equipment in order. The nickel plating will require frequent cleaning to keep it looking bright, and the work of polishing the nickel parts, it is believed, will provide an incentive to the wipers to keep well cleaned, at all times, all the equipment to which the nickel plated nuts are attached.

In building its 14-in. mill it was the aim of the Ford company to provide a plant of the finest quality throughout, and it is expected that the company, following its universal practice with respect to maintenance and efficiency, will set a new standard for rolling mill operation.

"Practical Methods for the Elimination of Waste in Industry" will be the major subject of the thirteenth national convention of the Society of Industrial Engineers, which will be held in Philadelphia June 16, 17 and 18.

Rail-River Terminal to Be Built at Cincinnati

The construction of a river-rail terminal at Cincinnati will be started within a few weeks and will be in operation by July 1 for the use of shippers of iron and steel products, according to an announcement by the Cincinnati River-Rail Transfer Co., following its annual meeting Jan. 11.

Plans for the terminal include a 10-ton portable electric crane mounted on an elevated track well above flood level and capable of lifting goods from a barge and depositing them on a freight car or motor truck at the top of the bank. A similar crane is to be placed on top of the bank to deliver goods to any part of the property included in the terminal. Three switches, with a capacity of five cars each, are to be built from the Baltimore & Ohio main line into the property and from this line the cars can be switched to any industrial section in the metropolitan switching limits of Cincinnati.

Building of the terminal will be financed by calling for the payment of \$50,000, or about one-half of the stock subscribed by Cincinnati business men in the past few years.

Bolt and Nut Factory in South Africa

WASHINGTON, Jan. 19.—Writing under date of Dec. 2, 1925, Trade Commissioner Perry J. Stevenson, Johannesburg, South Africa, has reported to the Department of Commerce that plans for the manufacture of bolts and nuts are being made by the South African Nut & Bolt Factory, Ltd., a private limited liability company, registered in the Transvaal. Mr. Stevenson said that it was expected that the plant would be in operation before the end of 1925. The capacity of the plant, it is stated, will be 200 tons per month with a single shift of eight hours a day. The new company has taken over the entire equipment of the Union Plate & Nut Factory at Vereeniging, which is described as standard equipment, as used in Great Britain and elsewhere.

South African commercial imports of bolts, nuts and rivets have averaged about £145,000 for the past two years, or about 550 tons of bolts and nuts a month. Government imports in 1924 totaled £12,568, practically all of which came from the United Kingdom. Of the commercial imports, the United Kingdom holds about 65 per cent of the trade, followed by the United States with 14 per cent.

"Analyses of Alabama Coals" is the title of Technical Paper 347 of the United States Bureau of Mines. The author is Charles Butts, geologist of the United States Geological Survey.



A Hot Saw Is Located at the Front End of the Hotbed, at the Side of the Runout Table From the Last Finishing Stand. Occasionally a short piece is cut from a bar before it passes to the hotbed and the piece is gaged to keep a check on the accuracy of rolling

NEW ENGLAND FOUNDERS

Celebrate Thirtieth Anniversary of Founding of Association

The annual dinner of the New England Foundrymen's Association, held Wednesday evening, Jan. 13, at the Exchange Club, Boston, took the form of a past presidents' night. It also marked the thirtieth anniversary of the founding of the association. Of the twenty-one living past presidents, fifteen attended. They were George H. Gibby, Condor Iron Foundry, East Boston; B. M. Shaw, Walker-Pratt Mfg. Co., Watertown, Mass.; Walter B. Snow, Boston; Joseph L. Anthony, Glenwood Range Co., Taunton, Mass.; Robert C. Bird, Broadway Iron Foundry, Cambridge, Mass.; A. F. Corbin, Union Mfg. Co., New Britain, Conn.; T. R. Scott, Brown & Sharpe Mfg. Co., Providence, R. I.; George P. Aborn, Blake & Knowles Steam Pump Works, Cambridge; Robert L. Newcomb, Deane Steam Pump Works, Holyoke, Mass.; A. B. Root, Jr., Hunt-Spiller Mfg. Corporation, South Boston; C. S. Lovell, Walker-Pratt Mfg. Co.; E. H. Ballard, General Electric Co., Everett, Mass.; Norman Russell, A. Rus-

sell & Sons Co., Newburyport, Mass.; and R. F. Harrington, Hunt-Spiller Mfg. Corporation.

Mr. Russell acted as toastmaster. He presented each past president with a gold pencil. Fred F. Stockwell, Barbour-Stockwell Co., Cambridge, who has been secretary of the association since its inception, also received a gold pencil.

Earlier in the evening H. P. Blumenauer, Arcade Malleable Iron Co., Worcester, Mass., was elected president of the association, and H. S. Chaffee, Builders Iron Foundry, Providence, vice-president. George H. Gibby, Condor Iron Foundry, East Boston, was re-elected treasurer and Mr. Stockwell secretary.

The following were elected an executive committee: Thomas E. Officer, Sullivan Machinery Co., Claremont, N. H.; Carl H. Neumann, Union Mfg. Co., New Britain, Conn.; Thomas I. Curtin, Waltham Foundry Co., Waltham, Mass.; Charles F. Miller, Universal Winding Co., Providence, R. I.; and Charles A. Reed, Rogers Brown & Crocker Brothers, Inc., Boston.

Following the election of officers R. F. Harrington, retiring president, turned over the meeting to Mr. Blumenauer. Reports of the officers showed the association in good financial standing and growing. Professional entertainment followed the dinner, which was attended by 153. Charles A. Reed was chairman of the committee of arrangements.

INDUSTRIAL MACHINERY

Exports Not a Definite Ratio to Production—Conditions Here and Abroad Govern

WASHINGTON, Jan. 16.—Discussing the American export ratio for industrial machinery, the Industrial Machinery Division, Department of Commerce, points out that in a general way it has been recognized that American machinery manufacturers export perhaps 20 per cent of their products, while Great Britain and European manufacturers generally export a much larger proportion. It is explained that ratios of this character necessarily fluctuate from year to year. Returns recently made available by the Bureau of the Census make interesting comparison possible.

According to the census, machinery production in the United States in 1923 was \$1,403,688,000, while the export statistics for that year show that the total shipped abroad was only \$123,598,000, giving an export ratio for the entire American machinery industry of only 8.8 per cent. The corresponding experience of 1921 was radically different, for the census of that year shows a production of \$901,087,000, of which exports represented \$208,798,000, revealing an export ratio of 23.2 per cent.

The decline in exports from 23.2 per cent to 8.8 per cent is rather startling, it is pointed out, until it is remembered that during 1921 industry in the United States was suffering from depression, while the export trade still felt the stimulating influence of the post-armistice boom, which, at that time, had not entirely spent its force. In 1923 the reverse situation prevailed, for export business was exceedingly dull and machinery shipments abroad showed less than 60 per cent of the volume of 1921. Meanwhile production had expanded, because of domestic demand, showing an increase in excess of 55 per cent.

This striking change in the conditions of the above years is declared to emphasize the need of discretion in any discussion relating to the export ratios that might be expected in any particular branch of the machinery industry. The report adds:

The collapse of the export ratio for oil-well machinery from 41.2 per cent to 12.7 per cent is, perhaps, the most striking change here revealed. It is interesting to note that for mining machinery there was some improvement, for, although the export ratio was shaded slightly, the volume of equipment exported increased 34 per cent in the face of the falling tendency in the general machinery market, a showing that must be most gratifying to everybody concerned. Refrigerating equipment and cotton gins also made a very creditable showing.

Nevertheless it is a fact that, in general, American manufacturers do not enjoy so favorable an

export ratio as do most of their European competitors. Careful study of the situation will undoubtedly reveal circumstances indicating that the export part of the business deserves more careful attention than heretofore it has received.

Type of Machinery	Production— (Figures in Thousands of Dollars)		Exportation— (Figures in Thousands of Dollars)		Per Cent Exported	
	1921	1923	1921	1923	1921	1923
Dredging and excavating ..	\$17,849	\$38,241	\$2,281	\$1,518	12.8	4.0
Oil well machinery	27,415	52,158	11,307	6,626	41.2	12.7
Mining	39,290	47,590	7,564	10,137	25.0	21.3
Air compressors	15,729	27,762	3,906	2,628	24.8	9.5
Metal-working machinery ..	81,223	189,240	19,636	13,105	24.2	6.9
Shoe machinery	9,482	12,399	1,797	1,324	19.0	10.7
Flour and grist mill machinery ..	8,663	9,084	1,612	1,155	18.6	12.7
Pumps and pumping	69,255	92,815	11,966	7,462	17.3	8.0
Textile machinery	115,167	127,496	19,928	9,044	17.3	7.1
Wood-working machinery ..	25,682	49,544	3,544	1,754	13.8	3.5
Laundry machinery	12,983	19,077	1,304	1,263	10.0	6.7
Paper and pulp mill	31,581	36,342	2,988	2,007	9.5	6.6
Concrete mixers	8,666	14,463	582	568	6.7	3.9
Ice and refrigerating	33,174	36,542	1,912	2,265	5.8	6.2
Road-making machinery ..	17,858	27,514	990	923	5.5	3.4
Elevators and elevating machinery	61,377	106,494	1,980	2,428	3.2	2.3
Cotton gins	2,721	7,175	118	316	4.4	4.4
Totals of above	\$569,114	\$887,846	\$93,425	\$64,523	16.4	7.3

Working for Buffalo Shipments by Canal to Tidewater

BUFFALO, Jan. 13.—It is expected that among the recommendations of the Gibbs commission which has been studying ways and means of bringing more tonnage to the New York State barge canal will be a suggestion that the Gowanus terminal of the canal at Brooklyn be developed to open a way into New England for Buffalo-made steel, now barred because of high freight rates. There is a possibility also that the report may incorporate a recommendation that the services of the State attorney general be enlisted to force the railroads to effect connections with the canal.

One Buffalo pig iron and steel manufacturer told the commission during the course of its series of hearings that due to existing railroad freight rates it was possible for pig iron from India and Belgium to be delivered in New York City for less money than it can be produced in Buffalo. Discriminatory rates on coal and ore are such, he stated, that no one would now think of starting a new steel plant outside the Pittsburgh district.

Economy Is Business Need: Schwab

Can Remain on Plateau of Prosperity and High Prices
Only by Further Reduction of Costs—Tariff No
Barrier to European Competition

OUR whole business structure calls for attention to economy.
What I want to know about any business is not so much the increased number of mills and plants it may have as the intensive improvement and the economies with which it is operating existing plants.

WE stand in this country on a great plateau of prosperity and high prices.
*Tariff walls will not keep out European goods indefinitely.
The only barrier that will save our own markets and the foreign markets will be the barrier of economical production.*

THE best assurance of prosperity lies in the healthy and happy relations between employers and employees in this country.
Bolshevism is tabooed by our greatest labor organizations; socialism is at a very low ebb.

THE necessity for economy in industry was stressed in an address delivered by Charles M. Schwab, chairman Bethlehem Steel Co., at the annual dinner of the American Road Builders' Association at Chicago, Jan. 13.

"My imagination is always stirred when I hear of savings in industry or savings in the cost of doing business," said Mr. Schwab. "It is a fine thing to expand a business, to increase the number of its mills and plants, but what I want to know about any business is not so much the increased number of mills and plants it may have, as the intensive improvement and the economies with which it is operating existing plants. . . .

"An industry like road building, . . . which cuts down the costs of transportation, is of vital consequence to this whole country. . . . One-third of the manufacturing cost of producing a ton of steel is to be charged to transportation. . . .

"We have in this country upward of 250,000 miles of railroads and, curiously enough, just a little more than that number of miles of hard surfaced roads. But there are some 3,000,000 miles of roads of all kinds in the United States. And so we get some idea of what is yet to be done in the resurfacing and rebuilding of road facilities already in existence. . . .

"The automobile is, of course, no longer a mere luxury; it is a necessity. When I realize then to what extent good roads add to the possible additional use of the automobile, I see vast opportunities for producing new wealth and happiness in this country."

Must Adapt Ourselves to Hard Economic Conditions

The remainder of Mr. Schwab's remarks were, in part, as follows:

"Our whole economic structure calls for attention to economy. We stand in this country on a great plateau of prosperity and high prices. I am a believer in this prosperity and a believer in the idea that it will grow and that the opportunities open to us are almost beyond the dreams of men; but the realization of our opportunities can be achieved only through the study of the actual facts and by adapting ourselves to the hard economic conditions.

"What is the great fact which we must face today? It is this. The continent of Europe has been through a terrific illness; war has cast a frightful blight over a territory inhabited by some 400,000,000 people; these people have lost an enormous amount of their wealth; they have been shot to pieces by war. They are now feeling the loss of their assets. The process of deflation is going on.

"With what result? With the result that the standards of living of the people throughout the continent are being reduced. The people cannot live off their past sav-

ings; their savings are gone. They can now enjoy only the benefit of the wealth which they produce. The result of all that is that the people are adjusting themselves to a much sterner condition of life. They find they must work harder and longer hours and at reduced wages. All this means ultimately a great reduction in the cost of producing manufactured articles.

"Europe is just beginning to get readjusted to the new conditions. I can foresee the time when the factories of Europe will yet be turning out vast quantities of goods, which will be sold in our own markets and in the markets of the world, in competition with American goods. The European goods will be produced at costs far below our present costs in this country. Tariff walls will not keep out such goods indefinitely. The only barrier that will save our own markets and the foreign markets where we want to have a place will be the barrier of economical production.

Further Economies Essential in American Industry

"We have already shown in this country the enormous possibilities of economy through mass production, improvements in machinery and labor-saving devices. All of this has resulted in giving continued employment to our people at very high wages. These high wages cannot be maintained and the reasonable profits of manufacture cannot be assured unless we continue to realize economies upon an ever-progressive scale in sufficient measure to enable us to meet the stern facts which the altered conditions in Europe force us to regard.

Hope Lies in Labor Situation

"In no way can the opportunity for greater improvement be realized to more impressive degree than in a continuous improvement in the relations between capital and labor. Personally I gather more confidence in the immediate future prosperity of our country than from any other source in the fact that there is now prevailing a healthier and happier relationship between employers and employees in this country. Bolshevism is tabooed by our greatest labor organizations; socialism is at a very low ebb. Our employers are realizing that our greatest prosperity can come in improving the lot of the men who work with them; and employees are realizing that little is gained through fighting those who invest their money in industry or those who spend their time in the conduct of industry.

"With employers and employees sitting down to discuss their common interests together, and then working hard to promote the welfare of one another, we find a condition justifying confident enthusiasm over the future which we have not been justified in feeling for many years past.

Conference on Scrap Specifications February 4

WASHINGTON, Jan. 19.—Revision of specifications for iron and steel scrap will be considered at a meeting at the Department of Commerce on Thursday, Feb. 4, by representatives of blast furnaces, steel plants, foundries, the National Association of Purchasing Agents, technical societies and others. The meeting will be under the auspices of the Metals Utilization Committee of the department and W. Chattin Wetherill, director of the committee, will preside.

Preparation of standard specifications has been in progress since September, 1923, by an iron and steel committee of the National Association of Purchasing Agents. The first set of standards was adopted at a conference held on Jan. 12, 1925, at the Bureau of Standards. The proposed set was published in its entirety in THE IRON AGE of Jan. 8, 1925, pages 137, 175 and 176. The standards were adopted as proposed with few exceptions, the latter being noted in THE IRON AGE of Jan. 15, 1925, page 198. The revisions adopted at that time were made effective for one year and will be given consideration at the forthcoming conference for further changes. In addition consideration will be given to specifications for iron rolling mills.

The conference will also consider a recommendation for a standard contract form for the sale or purchase of scrap. Such a form, it is explained, is intended to replace a large number of varieties which are now in use.

Refuse to Reopen Jones & Laughlin Case

WASHINGTON, Jan. 19.—The Jones & Laughlin Steel Corporation rate case is a closed incident so far as the Interstate Commerce Commission is concerned. The commission made public on Wednesday of last week an order denying petitions for reopening and rehearing of the case. The petitions had been filed by steel manufacturers, including the Jones & Laughlin Steel Corporation, and railroads. The railroads had objected particularly to the mileage scale set up in that proceeding. With the denial of the petitions, it is believed that the application of the principle in the Jones & Laughlin case will become even more widespread than it has been, not only as it relates to iron and steel, but other traffic as well. Reopening of the case was opposed in a petition filed by the Illinois Steel Co.

Bethlehem Supports Mileage Scale

WASHINGTON, Jan. 19.—Regrouping of iron and steel mills in the Philadelphia district by applying the Jones & Laughlin mileage scale is declared to have strong points to recommend it, according to a reply by the Bethlehem Steel Co. to exceptions made to the recent report of Examiner Cheseldine in the Alan Wood Iron & Steel Co. case. In this proceeding the examiner recommended regrouping as a remedy to meet the complaint that the Bethlehem Steel Co. was favored with a rate of 14.5c. per 100 lb. from Bethlehem to New York as against a rate of 17.5c. charged the complaining mills. The Bethlehem company, which intervened in the case, says the evidence establishes the propriety of the 14.5c. rate from Bethlehem and the 19c. rate from the Baltimore group, including Steelton, Pa., and Sparrows Point, Md. It may also be considered to establish the propriety of the 17.5c. rate from the complaining group, if that group is to be preserved, it is declared. But too broad grouping, says the brief, may result in unreasonable and discriminatory rates from some of the complaining points.

In behalf of the Jones & Laughlin scale, the brief says that it will satisfy the complaint with the least possible disturbance to the carriers' rate structure and without change in other rates in which shippers who have not been heard have a vital interest.

In a brief filed by the Pennsylvania and Reading railroads, protesting against the grouping plan sug-

gested, it is declared that, having regard to the long established basis for determining rates on iron and steel articles, "it is manifest that no such method of grouping can be applied in connection with rates from plants manufacturing these commodities."

Ford Company Erecting Airplane Hangar in Cleveland

CLEVELAND, Jan. 16.—Work on the Ford Motor Co.'s airplane hangar in Brook Park, Cleveland, Ohio, will be begun immediately, the city council having passed favorably on the ground lease. The hangar, to cost between \$40,000 and \$50,000, and cover 85 x 100 ft., will be used by the Ford planes which shortly after Feb. 1 start operating a Cleveland-Detroit air mail service.

The Ford Motor Co. has been maintaining a daily freight schedule from Detroit to Cleveland, carrying its own products, since July, 1925.

British Proposal to Break Up 20-Year- Old Ships

Numerous plans to aid the shipbuilding industry of Newcastle-on-Tyne have been brought forward and the Boilermakers' Society of that city is now considering that of a London financier, who suggests breaking up 300 ships over twenty years old, and make the proceeds an offset in the cost of new vessels and that the British Government loan half the cost to the owner at 5 per cent, say consular advices to the Department of Commerce. Another plan advised is to absorb into the shipbuilding industry 75,000 idle men by transferring their unemployed benefits at 23s. per week to the employer to revive the trade. This scheme would provide assistance to the amount of about £4,500,000 a year.

Weirton Blast Furnace

As part of its program of expansion the Weirton Steel Co., Weirton, W. Va., has just placed the contract for an 800-ton blast furnace. The William B. Pollock Co., Youngstown, will build the furnace and stoves, while the structural steel for the buildings, as mentioned last week, has been awarded to the McClintic-Marshall Co. The entire installation involves approximately 4000 tons of steel. Brick for lining the stack and stoves will be furnished by the General Refractories Co.

To insure ample supplies of coal in connection with the enlargement of its by-product coke plant the Weirton Steel Co. has purchased 1000 acres of coking coal adjoining its present holdings along the Monongahela River near Brownsville, Pa.

New Low Record for Shipbuilding

Less than 2,000,000 gross tons of ships are actually in course of construction throughout the world, according to a statement just issued by Lloyd's Register of Shipping. This is not merely a low record for the shipyards of the world during the post-war period, but is also below the mark just before the war, when 2,496,000 gross tons were being built. Work in the United States shows some gain, but there has been a sharp decrease in Great Britain and Ireland.

Holds Metal Columns Are Properly Rated

WASHINGTON, Jan. 19.—Holding that ratings on metal columns in carloads and less-than-carload lots in Official Classification territory are not unreasonable, unjustly discriminatory, or unduly prejudicial, Burton Fuller, examiner Interstate Commerce Commission, has recommended dismissal of a complaint against them by the Union Metal Mfg. Co., manufacturer of metal columns and street lamp posts, Canton, Ohio.

Mechanical Refrigerator Castings

Parts Must Withstand High Pressure Test—In
Quantity Production, Proper Mixture and
Large Risers Are Essential

BY F. A. SCHNEIDER*

THE recent introduction and development of electrical refrigeration has confronted the gray iron foundry industry with the problem of producing in large quantities small castings which will stand extraordinary pressure.

The system of mechanical refrigeration may utilize the phenomena of the vaporization and liquefaction of such a gas as sulphur dioxide. Should a leak appear in the castings, the gas would be liberated into the food compartments of the refrigerator, causing the food to spoil and creating an obnoxious odor. It is therefore imperative that the castings used in a mechanical refrigerator be produced so as to prevent the escape of the gas. The Delco Light Co., Dayton, Ohio, a unit of the General Motors Corporation, which manufactures "frigidaires," requires its gray iron castings to pass a pressure test of 260 lb. of air submerged in water for 4 min. The actual working sulphur dioxide pressure is only 80 lb.; however, the manufacturers feel that the castings should pass a 260-lb. test in order to insure their suitability and furnish a margin of safety.

These castings weigh only 10 lb. and must not exceed 3/16 in. in thickness. For years castings which would pass these specifications have been made; the difficulty lies in turning them out on a production basis. In the production of the castings in the foundry of the Gartland Haswell Rentschler Co., Dayton, Ohio, it has been found advisable to apply principles heretofore used only by manufacturers of steel and malleable iron castings. In the first place, it is absolutely necessary for the castings to have the proper molecular structure.

This is insured by the character of the metals employed and the use of heavy risers which feed the castings during the cooling process. For a long time small risers were used, but it is now apparent that this was improper practice. There must be weight in the risers to give the casting the proper feeding.

The most important factor entering into the manufacture of the castings on a production basis is the character of the metal as it enters the molds. This metal must be free from segregations or slag. It must also be fluid and white hot. In the Gartland Haswell Rentschler foundry iron is melted in a cupola with an inside diameter of 38 in. A small cupola seems best adapted for this, as the iron can be more easily controlled. The analysis of the molten metal is:

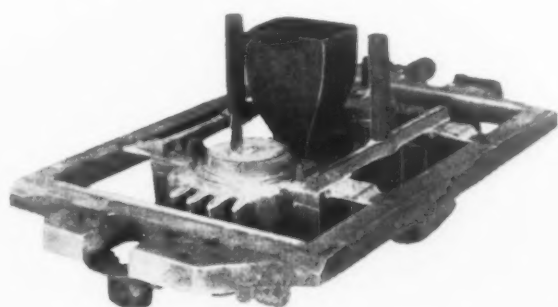
	Per Cent
Silicon	2.00 to 2.25
Sulphur	under 0.07
Phosphorus	under 0.20
Manganese	0.50 to 0.60
Combined carbon	0.45 to 0.55
Graphitic carbon	2.90 to 3.10
Chromium	about 0.20
Nickel	about 0.10

A mixture of 40 per cent pig iron, 10 per cent Mayari iron, 15 per cent steel rails and 35 per cent sprue and scrap is used.

Silicon is a softener. When the silicon is too high it has the effect of making the iron spongy. Pressure castings for electrical refrigerating units have been made successfully with silicon as low as 1.75 per cent; however, it is felt that 2 to 2.25 per cent is safer. In this connection it is interesting to note that a great deal of experimental work is being done at the present

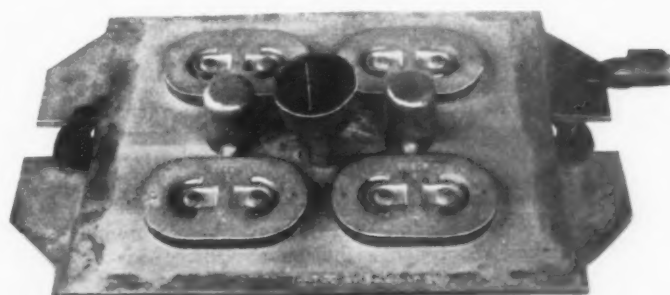
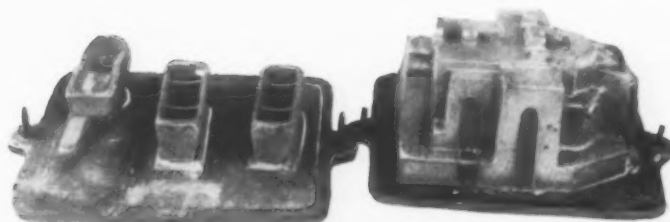
*President Gartland Haswell Rentschler Co., Dayton, Ohio.

(Concluded on page 246)



Large Risers (Left) Are Necessary to Insure a Proper Molecular Structure in the Casting. A cylinder head pattern showing riser

A Crankcase (Right) Pattern Showing Feeders. To produce a 50-lb. casting 140 lb. of iron goes into the mold



A Refrigerator Cylinder Head (Left), a Plate Casting Tested at 260 Lb. The large risers are a feature

FAVORS OWN EXHIBITS

Cincinnati Regional Meeting of Machine Tool Builders Approves One Annual Show

That machine tool builders should refrain from exhibiting their products at various conventions and instead should hold an annual exposition under the auspices of the National Machine Tool Builders Association was the consensus of opinion expressed at the regional meeting of the national association which was held at the Business Men's Club, Cincinnati, on Jan. 14.

It was the unanimous belief of the members present that such an exposition would be highly successful and that buyers from all parts of the United States would avail themselves of the opportunity to view the newly improved machines in operation. If machine tool manufacturers in other districts approve of the plan, it is likely that efforts will be launched in the near future to arrange for the first exhibition, which will be an annual affair.

Announcement was made at the meeting of the appointment by President H. M. Lucas of a committee on trade practices. Its duty it will be to hear complaints against the violation of the association's code of ethics. The committee will consist of William A. Viall, Brown & Sharpe Mfg. Co., chairman; O. B. Iles, International Machine Tool Co.; August H. Tuechter, Cincinnati Bickford Tool Co.; James Gleason, Gleason Works; and J. G. Benedict, Landis Machine Co., Inc.

E. F. DuBrul, general manager of the association, discussed the conditions in the machine tool business today and explained the revised machine tool barometer. He told of the research work being done by various universities and industrial plants throughout the country and urged greater use of the facilities for research which American educational institutions are offering to industry.

After considerable discussion of methods used by manufacturers to determine costs, it was decided to suggest to the cost accounting committee of the national association the preparation and publication of a cost accounting system for distribution among the members.

Regional meetings will be held in Cleveland, Feb. 2, and in Rockford, Ill., Feb. 4.

Meetings of Railroad Mechanical and Purchasing Associations

The annual conventions of the American Railway Association, Division 5—Mechanical, and Division 6—Purchases and Stores, will be held at Atlantic City, N. J., June 9, 10 and 11. In conjunction with the meetings the Railway Supply Manufacturers' Association will hold an exhibit on Young's Million Dollar Pier June 9 to 16.

To Discuss Simplification of Reinforcing Bars

Two meetings of importance to the steel reinforcing bar industry will be held on Jan. 26 by the Department of Commerce. One will be a revision conference to consider what further changes should be made in the simplification program adopted more than a year ago under which 44 sizes (cross section areas) were reduced to 11. The second will consider whether it is possible to adopt one of the existing standard specifications for new billet steel bars from which reinforcing bars are rolled.

One result of the simplification program, in which the Division of Simplified Practice cooperated, has been the release of some \$4,500,000 investment formerly required by dealers and distributors in stocks of the sizes of reinforcing bars which were eliminated. It is pointed out that there is almost no uniformity in material specifications for reinforcing bars; and that the adoption of such a standard specification would at once make a further sweeping reduction in distributors'

stocks, as well as have a revolutionary influence on the industry.

The revision conference will be asked to consider tentative recommendations covering the simplification of steel spirals, which has been prepared by the Concrete Reinforcing Steel Institute.

Canadian Engineers to Meet

The annual general and professional meeting of the Engineering Institute of Canada is to be held at the King Edward Hotel, Toronto, on Jan. 27, 28 and 29. A registration of 700 is expected, including many prominent engineers of eastern and western Canada and the United States.

In addition to the Toronto Branch Executive, of which Major T. R. Loudon is chairman, the program and arrangements are in the hands of a special committee with the following personnel:

Chairman, Prof. C. R. Young; secretary, L. M. Wynne-Roberts; finance, W. E. Douglas; papers, W. P. Dobson; accommodation, J. B. Carswell; dinner, Col. H. W. Lamb; entertainment, Napier Simpson; publicity, C. A. Meadows; service, W. Tate.

The fact that there are three papers on the fuel problem in Canada forecasts a widespread discussion of this important question.

New York Steel Treating Entertain President Bird

Fifteen members, including the officers and the executive committee, of the New York chapter of the American Society for Steel Treating gave a dinner to the president of the national society, R. M. Bird, at the Columbia University Club, New York, Tuesday evening. There was a general discussion of matters of vital interest to the local and to the general organization. Mr. Bird is making special visits to various chapters.

Meetings of Technical Societies

The Quad City Foundrymen's Association will hold a dinner meeting at the LeClaire Hotel, Moline, Ill., Jan. 25. A. A. Grubb, of the Ohio Brass Co., Mansfield, Ohio, whose subject will be "Technical Control in the Foundry," will outline methods of sand conservation and reclamation used in his plant. He will also discuss other methods of technical control in the foundry.

The Tri-Cities Section of the American Society of Mechanical Engineers will hold a dinner meeting at the Davenport Chamber of Commerce, Davenport, Iowa, Jan. 25. Calvin W. Rice, national secretary, will discuss the "Status of Engineering Education in the United States and Abroad."

The Tri-City Chapter of the American Society for Steel Treating held a dinner meeting at the Davenport Chamber of Commerce, Davenport, Iowa, Jan. 14. C. E. Hellenberg, engineer, Wilson Maulen Co., Detroit, delivered an address on hardness testing.

The Midwest Power Conference and Power Exposition will be held at 666 Lake Shore Drive, Chicago, Jan. 26 to 29. It is sponsored by the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, the Western Society of Engineers, the National Safety Council, the American Institute of Mining Engineers and the National Electric Light Association.

Committees of engineers are being organized by the American Engineering Council to carry on a nationwide movement for the reorganization of the Department of the Interior. The engineers ask that the name of the department be changed to the Department of Public Works and Domain, and they recommend drastic changes in the distribution of United States administrative functions. The public works plan was discussed at the annual meeting of the council held in Washington for three days beginning Jan. 13.

PRODUCTION GRINDING

High Output of Piston Rings and Coil Springs on Machines with Special Fixtures

A disk grinder arranged for rough grinding both sides of piston rings simultaneously at the rate of 2400 an hour, and a ring-wheel grinding machine designed for high output in grinding both ends of short coil springs are here illustrated. Both machines were built by Charles H. Besly & Co., 118 North Clinton Street, Chicago.

The first machine, a No. 6 belt-driven wet disk grinder, is equipped with an automatic work-feeding fixture for handling piston rings $3\frac{1}{2}$ in. in diameter and $\frac{1}{8}$ in. thick. About 0.008 in. of stock is removed from each side of the ring; the limits on the thickness are plus or minus 0.0015 in., and the faces must be parallel within 0.001 in. The machine is for the most part of the Besly company's standard construction.

The automatic work-feeding fixture and supporting bars are attached to the T-slotted pad on the front of the machine and secured also to a pad on the water hood at the rear. The slide that carries the feeding ram is mounted in a guide casting and is held in place with adjustable gibs. The top gib holds the slide in suspension and acts as a side bearing. This method of mounting is intended to keep the wearing parts out of the grit and slush. The feeding rams are attached to the inner end of the slide and vary in width and thickness in accordance with the rings to be ground. An adjustable floating guide-bar to hold the work from

being forced upward while grinding is mounted directly over the work-supporting bar.

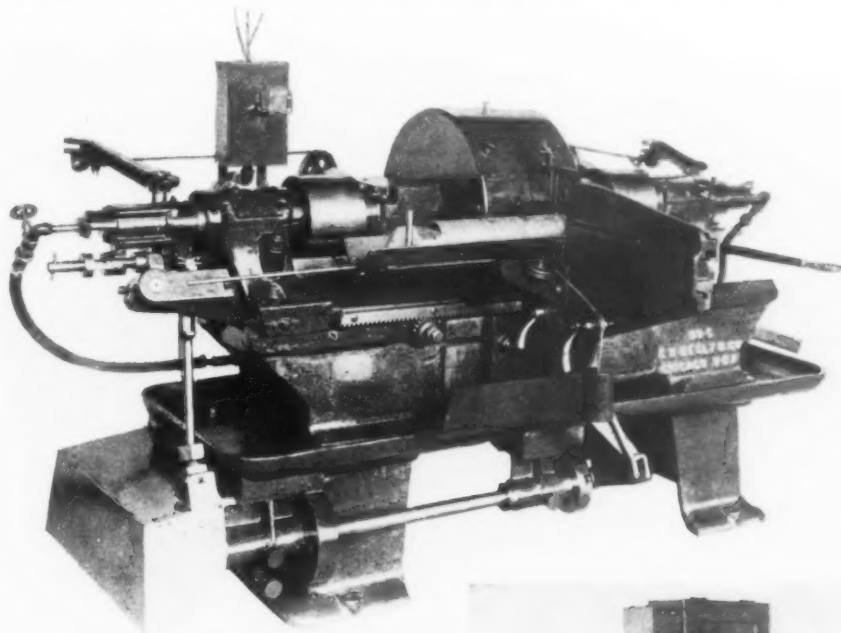
The work-feeding apparatus consists of a V-shaped trough mounted in a horizontal position on the left side of the fixture, close to the grinding wheels. The work is placed in the trough and fed into the fixture by a sliding member which is operated by a cable and weight opening and closing device. As each ring is fed into the machine the left-hand spindle is slightly withdrawn from the working position, this being accomplished by a cam or fixture drive shaft operating on a connecting rod attached to a crank lever which operates directly on the sliding machine spindle. Adjustment is provided so that this movement can be controlled to suit requirements. As soon as the ring is fed forward about three-fourths of its diameter, the cam releases the spindle, which moves forward, and grinding begins. The forward movement is controlled by a weight feed. The adjustment of the spindles for sizing the work is controlled by micrometer screws at each end of machine.

The work feeding fixture is driven by a $\frac{1}{3}$ -hp. motor through spur gears, cone pulleys, adjustable crank disk, connecting rod and lever with link to the feeding slide on the fixture. When desired the fixture can be driven by belt directly from a countershaft. Standard type steel disk grinding wheels are used.

Coolant is contained in a three-compartment settling tank at the rear of the machine, and is pumped from the tank through piping and hose to the outer end of each spindle, which is fitted with a running connection. It is then conveyed from this point directly through the center of the spindles and spreads out over the face of the grinding disks. A disk dressing attachment attached to the rear side of machine base has a wide cutter bar in which two sets of dressing cutters are mounted.

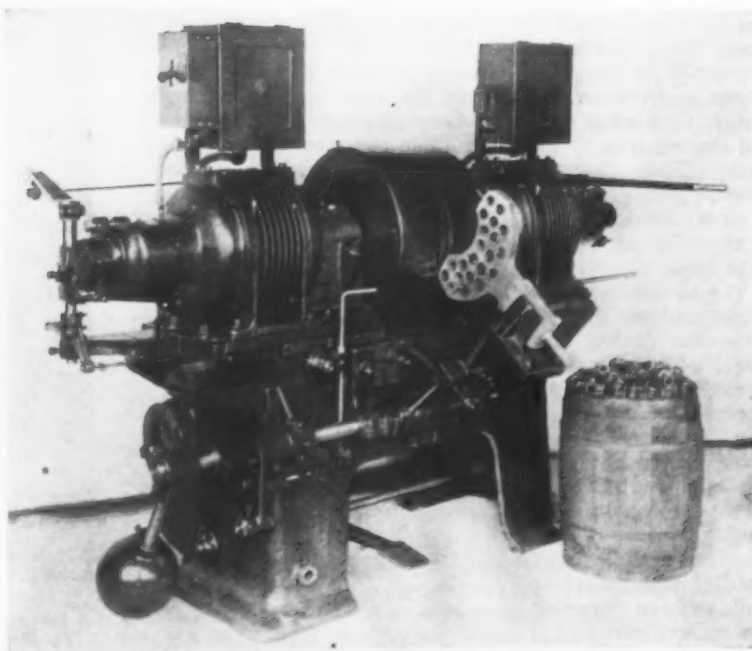
Oscillating-Type Coil Spring Grinder

The machine for grinding both ends of coil springs, designated as the Besly No. 6, is a motor-driven dry ring-wheel grinder equipped with new type power-driven oscillating fixture and workholder. The coil springs ground by the machine illustrated are $1\frac{5}{16}$ in. in diameter by $1\frac{1}{4}$ in. long and are made of $\frac{3}{16}$ in. wire. Twenty individual springs are ground on both ends in one operation, the ends being ground to a given length



Wet Disk Grinder With Automatic Work Feeding Fixture, and Used For Rough Grinding Both Faces of Piston Rings Simultaneously, Is Shown Above. The rings are $3\frac{1}{2}$ in. in diameter and the production is 2400 per hr.

The Dry Ring Wheel Grinder for Grinding Both Ends of Short Coil Springs Is at the Right. The oscillating fixture and workholder is a feature



or stock enough removed to give the springs a square bearing on each end. The production is 1600 springs per hour.

In operating this machine two detachable workholders are used. The operator loads one holder, places it in the socket on the oscillating fixture, opens the grinding wheels by means of foot lever, pushes the fixture forward and at the same time releases the fixture-locking device. The foot lever is then released and the grinding begins. A second holder is then loaded, after which the operator withdraws the locking bolt and pulls back the fixture from between the wheels, then removes the workholder and replaces it with the loaded holder. This method is stressed as permitting of continuous grinding and large production.

Disk Grinder with Vertical Motor

The incorporation of a direct-connected vertical driving motor, which provides a compact and self-contained unit occupying a minimum of floor space, is a feature of a new 53-in. disk grinder of the Gardner Machine Co., Beloit, Wis.

The machine, designated as the No. 24, is of massive design and is arranged so that either wet or dry grinding may be performed. The steel disk wheel is mounted on a substantial supporting wheel collar 20 in. in diameter, fitted to the upper end of the rotor shaft, which forms the driving spindle of the machine. The



The Direct Connected Vertical Motor Permits Self Contained and Compact Construction

motor frame itself serves as the machine pedestal, the base being the motor end-plate. This frame is constructed so that air circulates through it without circulating through and around the rotor or stator windings. Cool air is drawn up through openings in the base of the machine by means of a fan mounted on the under side of the disk wheel, and after circulation around motor frame is forced out through eight holes equally spaced around the machine. A remote control push-button switch is mounted at any convenient point on the base.

A cast-iron guard ring is fastened to the top of the base and to this ring may be secured work holders, dressing device, etc. A rigid horizontal bar dressing device of the type in common use on such machines is provided; a sliding block carrying the dresser cutters being forced back and forth across the abrasive disk by hand. A special patented pneumatic press for setting up the abrasive disk and similar to that employed on company's No. 79 vertical disk grinder described in THE IRON AGE of Nov. 19, 1925, is part of the regular equipment.

The spindle is of crucible steel and is mounted on radial and thrust ball bearings. All bearings run in oil, and are protected from grit, as well as from coolant when wet grinding is done. Suitable oil level pipes are

The machine itself is of the company's standard construction and is driven by 7½-hp. motors. The wheel spindles are operated outwardly by foot-lever and closed automatically by means of a weight feed. The oscillating fixture is mounted on the front of the machine and is operated by a connecting rod attached to a motor-driven reduction gear unit mounted at the rear of the machine. A T-slotted crank disk is attached to the reduction gear drive and the oscillating motion can be adjusted to meet the requirements of work to be ground. Hardened steel work-holders are used for very short springs, aluminum steel bushed holders for medium length and fabricated holders for long springs. The grinding wheels used are of the ring type, 18 in. in diameter, 4 in. deep and with a 9-in. hole.

brought from each bearing to the outside of the machine, for filling or draining the oil from the bearing housings.

The upper or body portion of the machine forms a reservoir for water or other coolant, but is in no way an integral part of the motor head casting. It is shaped to permit of ample knee and foot room for the operator. The reservoir is of 55-gal. capacity and is supplied with eight hand holes in the bottom, to permit the convenient cleaning out of sludge. An overflow at the top of the reservoir is provided, so that neither water nor grinding compound can get into the spindle bearings. A motor-driven pumping unit can be supplied and may be attached to any one of the hand-hole covers. When the machine is used for dry grinding, the coolant reservoir serves as a breeching for the exhaust system, one of the hand holes being used to form a connection between the exhaust and this internal breeching.

The weight of the machine is approximately 4400 lb. and the operating floor space occupied is 10 by 10 ft.

New Chain Block

Change of speed controlled automatically by the pull of the load on the lifting chain is a feature of the chain block illustrated, which is being marketed by the Kittredge Brothers, Atlanta, Ga. The shift requires no motion by the operator other than pulling the hand



Change of Speed Is Controlled Automatically by the Pull of the Load on the Lifting Chain

chain, and the speed cannot be changed except by changing the load.

In the 2-ton block shown, the ratio of hand chain travel to that of load chain under no load is 3 to 1. As the load chain tightens, the tension on it locks a pair of pawls securely in an outer ratchet, thereby changing the speed ratio to 47 to 1, and the heavier the load, the more firmly the pawls lock. When the parts of the device wear or the springs weaken, the block fails to go to fast speed, runs slow under no load, and thus functions on the side of safety. In 6-ton block, the ratio of hand chain to load chain under no load is 9 to 1 and in 12-ton size it is 18 to 1.

Another outstanding feature is the overload control. The drive is through an internal band clutch between the hand wheel and the brake. The block is tested to

50 per cent overload, and the arrangement is such that in case of greater overload, the clutch slips and block will not lift the load. The drive from the brake to the load chain, however, is positive, and it is claimed that if an overload is put on the block by other means than its own lift, it will hold until the chain breaks. It is stated that with the block holding an overload in mid-air, the overload clutch can be taken off the block entirely, as the holding is taken care of entirely by the brake, the clutch having nothing to do with it. The 2-ton block weighs 190 lb., and is of approximately the same dimensions as other blocks of the same capacity. It has six gears, the planetary type or gear drive being employed. The block is largely of pressed steel, and the bottom half of the gear case forms a cup-shaped reservoir for oil.

Welding Employed in Building Swimming Pool

Another example of the widening application of welding is the employment of the electric arc process in the building of a swimming pool for the Standard Club, Chicago. The joints made in the erection as well as those made in the shop were electrically welded, so that not a rivet was used on the job. Photographs of this work, which was done by the Graver Corporation, East Chicago, Ind., are here reproduced.

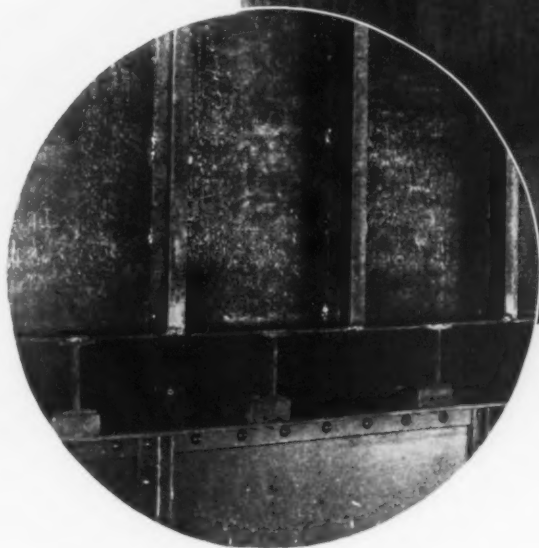
The tank is 30 by 60 ft., and has a bottom which

were connected by angles, the wall plates being welded to these angles continuously in two lines. An arc welding machine of the Lincoln Electric Co., Cleveland, was used for the work.

To Standardize Drawing Room Practice

The launching of a comprehensive program of standardization of drafting room practice, has been announced by the American Engineering Standards Committee. This action follows the unanimous recommendations of a conference held in December, which was

*Swimming Tank,
All the Joints of
Which Are Elec-
trically Welded.
The bottom rests
on I-beams and
the bottom plates
were extended
from the walls to
permit welding
channel irons to
them*



slopes up toward each end, and rests directly upon I-beams which run the length of the tank. In order to provide maximum rigidity, the bottom plates were designed to extend out from the walls so that channel irons could be welded to them and tack welded to the sides. Floor plates were made a part of the supporting I-beams by leaving a $\frac{3}{8}$ -in. gap between plates along the centers of the beams and welding this long valley up flush with the surface. Intermediate I-beams were tack welded to the plates.

Bottom edges of the wall plates were welded continuously to the floor plates both inside and outside of the tank. At the corners of the tank the wall plates

attended by representatives of 48 professional and trade associations, engineering schools, and manufacturing companies.

Doing away with the diversity in drafting room practice and in the materials, equipment and tools used for making drawings, will result, it is expected, in a more ready understanding of drawings by anybody for whom they are intended, in large savings in the draftsman's time and efforts, and in a more efficient use of drafting materials and filing cabinets for the storage of completed drawings.

An important item on the program of the conference is the series of sizes for drawings, the standardization of which will not only permit of the most advantageous utilization of drawing paper and tracing cloth as it comes in rolls of sheets, but will also permit of supplying the drafting department in advance with sheets cut to size, and on which the border line and the several spaces for title, the part list, etc., have been printed. Other items on the program include: Classification of and corresponding nomenclature for drawings in accordance with their purpose; method of rep-

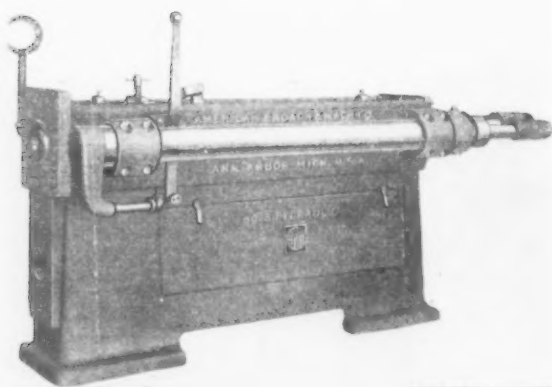
resentation of the subject, as, for example, the arrangement of views and sections; indication of dimensions and tolerances; indication of surface or finish; symbols representing in a diagrammatical form certain elements of construction, as threaded parts, gears, etc.; the arrangement of drawings as to borderline, title, notes; indication of changes and revisions, method of folding, etc.; the kind and size of lettering, figures and symbols; scales of reduction or enlargement; sizes of filing cabinets; and drafting equipment and tools.

The work will be carried out by a large sectional committee, under the sponsorship of the American Society of Mechanical Engineers and the Society for the Promotion of Engineering Education.

Twin-Cylinder Broaching Machine

The American Broach & Machine Co., Ann Arbor, Mich. is bringing out a No. 3 hydraulic broaching machine of twin-cylinder type, the machine being operated by two cylinders lying parallel to the broaching bed. The power and pull are applied through a heavy steel crosshead at the rear end of the machine. The two operating rams and the pulling ram to the pull head, are tied together through this crosshead so that they move as one.

This method of driving through two parallel cylinders is claimed to give a balanced pull and provides



The Twin-Cylinder Arrangement Is Claimed to Give Balanced Pull. The cylinders lie parallel to the bed and the pull is taken through a crosshead at one end of the machine

the further advantage of having the oil pressure applied directly against the large ends of the pistons. In this way it avoids having heavy pressure on the end of the cylinder that has the ram in it. The nuisance of leakage on packing glands is claimed to be thus eliminated, as there is no packing at the high pressure end of the piston. A further advantage stressed is that the cylinders do not have to be made exceedingly large to take care of the loss area due to the diameter of the ram, because in this design, working pressures are applied on that side of the piston that has no ram area to cut down the capacity.

The cylinders are of steel, honed to a high finish, and are designed to withstand heavy overload. The piston cups are of conventional type, and of chrome leather. The regular cast-iron snap ring is used on the high-pressure side, which is intended as a double precaution against by-passing or leakage.

The pump employed is of the variable-flow type, with constant pressure, so that the machine may be operated at suitable speeds with unreduced pressure for the particular tool in use or work being broached. The operating lever is connected to a shaft carrying stop dogs that can be set for any predetermined length of stroke. This shaft is also provided, at the back end of the bed, with an adjusting collar that may be set to regulate the operating speed of the machine. The reservoir, pump and other parts of the driving system contain about 10 gal. of oil. Sensitive control of the cutting speed from 0 to 20 ft. per min., is provided and the maximum return speed is 40 ft. per min. A gage graduated to read in lb. per sq. in. and also in tons in-

icates the pressure exerted while the machine is in operation. An automatic relief valve which may be set for a predetermined maximum pressure is also furnished.

The sliding head is fitted with hardened steel shoes which slide in box-shaped ways. The latter are fitted with caps which are removable for adjustment to compensate for wear. When motor driven, 7½-hp. 1200-r.p.m. motor is required. The weight of the machine, with motor, is 4700 lb.

Simplified Self-Opening Die Head

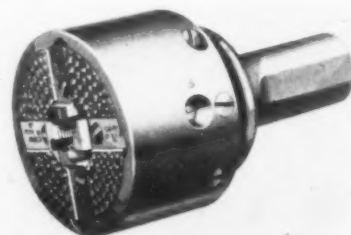
A new self-opening die head designated as style R and intended for use on multiple-spindle automatic screw machines and other equipment having a live spindle which requires a revolving die, has been placed on the market by the National Acme Co., Cleveland. The tool replaces the company's type OH-64H, previously marketed and is available in seven sizes with cutting capacities from ¼ in. to 2½ in. in diameter.

The new die head is tool hardened and ground throughout. Simplicity is a feature, there being only ten different parts, exclusive of the chaser and the wrench. This simplicity is stressed as making for increased life of the tool and minimizing upkeep cost, since there are no complicated parts to wear or break and since it is easy, with the use of a screw driver and the wrench provided to take apart and clean or replace the various parts.

The chasers are opened and closed by cams located on the inside wall of the cup or hood. As with other of the company's revolving die heads the opening and closing action is controlled positively by a spool on the back of the hood. On the style R tool, the spool is an integral part of the hood, consequently only a simple attachment in the form of a fork fitting into the spool is required to operate this die head on any type of machine.

Another feature stressed is the provision for adjustment for proper cutting size. This is taken care of by two parallel adjusting screws located in the side of the hood. It is necessary merely to loosen one screw and tighten the other to get the proper size adjustment which is shown by a micrometer reading on the hood, and this adjustment can be made without removing the tool from the machine. Two screws bear on lugs on the back of adjusting plate which is located in the body and held in place by a pin. Clearance for oil, chips, etc., between the body and the adjusting plate is provided by a lug which rides over the bottom of the body. The chasers used are of the overhang type which, it is said,

Simplicity Is a Feature, There Being Only Ten Parts, Exclusive of Chasers and Wrench



not only permit close to the shoulder threading but also serve to throw the chips outward and away from the work. The chasers for these older types of Namco revolving dies can be used in the style R die head of the same capacity.

Dill Slotters Built by Nazel Company

The Nazel Engineering & Machine Works, 4041 North Fifth Street, Philadelphia, has purchased from the T. C. Dill Machine Co. all rights and titles to the Dill slotter and will manufacture the machine in connection with the Nazel air hammer. Robert Miller, long associated with the T. C. Dill company as superintendent, will join the Nazel organization.

The Dill company was founded in 1888 by the late T. C. Dill, after whose death in January, 1922, the business was continued by his widow.

"Practical Capacity" 50 Million Tons

Steel Institute Directors Adopt Report of Committee—
Theoretical Ingot Capacity, 56 Millions—Country
Can Produce 45 Million Tons of Pig Iron

EXISTING steel plants in the United States are capable of producing 50,000,000 tons of steel ingots in a year. This is the rating made by the special committee of the American Iron and Steel Institute and designated by that committee as "practical capacity."

The same committee has made another estimate which it calls "theoretical capacity" and this it puts at 56,000,000 tons. The committee was also charged with a survey of the pig iron capacity of the country. Its finding is that the "practical capacity" of existing blast furnaces is 45,000,000 tons a year and that the "theoretical capacity" is 50,500,000 tons of pig iron a year.

IT will be recalled that Chairman John A. Topping of the Republic Iron & Steel Co. in an article in THE IRON AGE of Aug. 6, 1925, page 347, suggested that the rating of 61,136,805 gross tons as the annual capacity of steel works in the United States for the production of steel ingots and castings was too high. This rating was contained in the annual report of the American Iron and Steel Institute for 1924 and applied to capacity existing on Dec. 31 of that year. It was made up of 58,438,420 tons of ingots and 2,698,385 tons of steel castings. Mr. Topping considered that several million tons of the capacity listed was obsolete.

President E. H. Gary of the American Iron and Steel Institute appointed Mr. Topping chairman of a committee to make a resurvey of the steel making capacity of the country, the other members being James A. Farrell and Eugene G. Grace. At a meeting of the directors of the institute held in New York on Friday, Jan. 15, the report of the committee was presented and adopted. It is as follows:

Ferroalloys to Be Eliminated from Pig Iron Statistics Hereafter

NEW YORK, JAN. 15, 1926.
To the Directors of the American Iron and Steel Institute:

GENTLEMEN: While a small number of concerns producing pig iron and ingots have not yet replied to the questionnaires sent them, the tonnage that they produce is not important, and a close estimate of capacity can now be made.

The annual figures of pig iron production as published by the institute have heretofore included spiegel, ferromanganese and other ferroalloys, and your committee feels that spiegel, ferromanganese and the other ferroalloys are not pig iron as that term is currently understood. Your committee recommends that for this survey and for the statistics of 1926 and thereafter, pig iron be defined as follows:

"A metallic product, the result of blast furnace or electric smelting of iron ores, which is used as part or all of the initial metallic charge in steel making, puddling and producing molten metal for foundry use."

Your committee further feels that pig iron, ingot and steel castings capacity should be stated in two ways, viz:

A. *Theoretical Capacity.* This means the capacity of existing plants in condition to operate as of Dec. 31, 1925.

B. *Practical Capacity.* This means a production that may be attained in a year of maximum demand.

Individual plants or individual units of plants all have a record or maximum production for some one month, which cannot be maintained throughout a year. Accidents, interruptions for repairs, holidays and various other causes and conditions reduce the yearly output.

The figure of practical capacity is the result of the judgment of those making the survey, after weighing

all information given by the producers in answering the questionnaires and having regard to past records of production as reported to the institute. Your committee submits the following figures of capacity:

	(Gross Tons) Theoretical Capacity	Practical Capacity
Pig iron.....	*50,500,000	45,000,000
Steel ingots	56,000,000	50,000,000

*Based on definition of "pig iron" recommended above.

Due to insufficient replies to the questionnaires on steel castings, the need for correspondence with many who have replied, in order to clarify their statements, and pressure of other work in the secretary's office, it has not been feasible to make any report on steel castings capacity.

Respectfully submitted,

JOHN A. TOPPING, Chairman.

J. A. FARRELL,

E. G. GRACE,

Committee on Survey.

President Gary in giving out for publication the above report makes the following statement:

"The final figures of theoretical capacities will appear in the Annual Statistical Report. A report on theoretical and practical capacity for steel castings will be made as soon as sufficient information is received.

"All pig iron statistics of the institute, dating from Jan. 1, 1926, will be made in accordance with the definition of pig iron as given in the above report."

Fifty-Six Millions Is Total of Producers' Estimates

Late in 1925, in carrying on the survey of steel making and pig iron capacity the committee sent out questionnaires to all companies operating steel plants and blast furnaces. These questionnaires, as was indicated in THE IRON AGE of Nov. 26, 1925, p. 1469, called for a great many details. A figure on which the committee laid stress was the greatest actual output of each plant for the first half of any year since 1915; also the largest output for the last half of any year. Each reporting company was asked also for an estimate of annual capacity for a whole year of maximum demand, assuming adequate transportation service and no serious labor shortage.

While the report of the committee, as given above, does not so state, it would appear that the total of 56,000,000 tons of steel ingots which the committee offers as the theoretical capacity of the country is not far from the total of the estimates of maximum possible production submitted in reply to the questionnaire. Thus the inference from the report is that in any estimates individual companies may make, from time to time, of their operating rate they will be more nearly in line with the basis the institute directors have adopted if they make a 10 per cent deduction from the figure they reported to the institute committee as their estimate of what their plant could produce if called upon to do its utmost.

Period of Business Expansion Near End: Basic Conditions Still Sound

Trend of P/V Line and Unfilled Orders Suggest That Ingot Output Is Unlikely to Continue Recent Gains After February

BY DR. LEWIS H. HANEY

DIRECTOR NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable Factors

1. Increase in Retail Trade
2. Building Activity Large for Season
3. Decline in Business Failures
4. Easy Money and Credit

Unfavorable Factors

1. Decline in the P/V Line
(Ratio of Commodity Prices to Physical Volume of Trade)
2. Irregular and Lower Average Commodity Prices
3. Prolongation of Anthracite Strike
4. Political Uncertainties

No great change has occurred in business fundamentals and indications of any large further expansion are at present lacking. A fairly stable condition of business is probable during the remainder of the winter.

THE general impression one gets from an examination of business symptoms this month is one of hesitation and uncertainty. Apparently business men are realizing the truth of our forecasts that no boom is in sight and that the prospective gains will be moderate. Perhaps, too, warnings that building expansion cannot continue many months longer, and that the limit of automobile expansion is being neared, are now taken more seriously. This, however, is no time for pessimism; for business is decidedly good, and the continued absence of the serious maladjustments indicates that no period of bad business is yet in sight.

Certainly we are still in the rising phase of the business cycle. One of the outstanding developments of

December was the sharp gain in our adjusted index of railroad tonnage. This shows that, making due allowance for the seasonal ups and down of traffic, December made the best showing of any month since the spring peak in 1923. Car loadings held well for the season and the number of tons per car has picked up again.

Bank debits also maintained a high level in December—practically the same as in November, which month made a record.

P/V Line Moves Lower

THE various barometers upon which we rely in this issue show clear evidence of a period of hesitancy and forecast little change in either direction during the

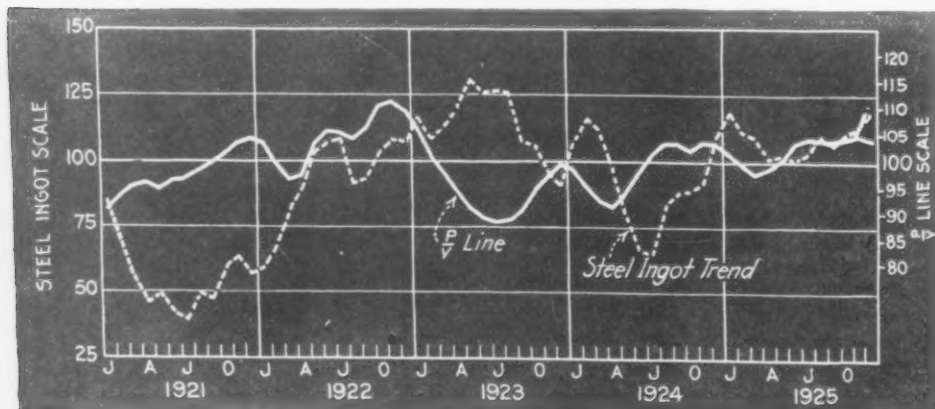
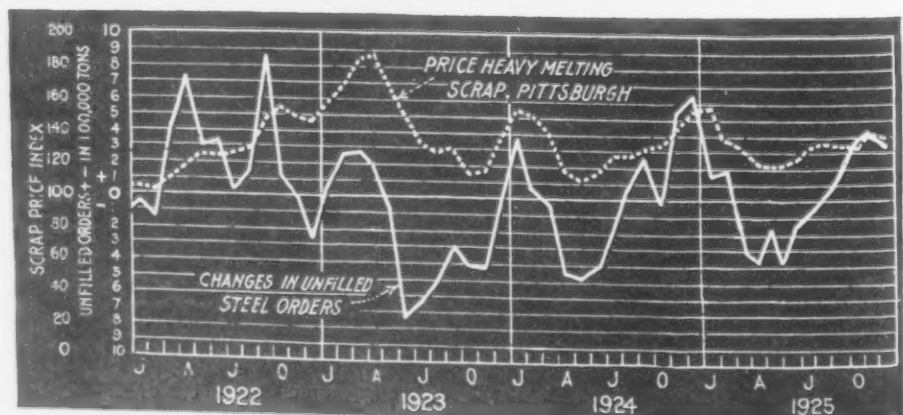


Fig. 1 (Left)—The Trend of Steel Ingot Production Is Still Upward but Indications Point to Little Further Increase

Fig. 2 (Right)—The Change in the Unfilled Order Curve Suggests That Expansion of Ingot Output Is Near an End



In This Issue

Period of business expansion near end; basic conditions still sound.—A fairly stable condition of business is probable for rest of winter.—Page 212.

January machine tool buying thus far not up to November and December levels.—But inquiries are numerous and pickup in automotive demand is anticipated.—Page 250.

"Practical" steel capacity of country 50,000,000 tons of ingots annually, says Iron and Steel Institute Committee.—Theoretical steel capacity 56,000,000 tons; "practical" pig iron capacity 45,000,000 tons, theoretical 50,500,000 tons. (Excluding ferroalloys).—Page 211.

Effect of revision of steel capacity on market uncertain.—Important point is whether individual producer gages his production on same basis as rating for the industry as a whole.—Page 216.

Quantity production of small, thin gray iron castings to stand high pressures, a difficult problem.—Foundryman recommends low phosphorus in mixture, low blast pressure, low coke charge and large risers on castings.—Page 205.

New research laboratories of the Bureau of Mines opens Jan. 26 in Pittsburgh.—Will handle most of Bureau's metallurgical problems; plans to cooperate with business men.—Page 219.

Rebates on raw material used for export goods and large differential between domestic and export price give German metal trades big advantage.—Now in a position to dump goods abroad by reason of many trusts or cartels.—Page 219.

"Tariff walls will not keep out European goods indefinitely," says Charles M. Schwab.—"The only barrier that will save our markets and the foreign markets will be economical production."—Page 203.

New metal, beryllium, one-third lighter than aluminum, has remarkable alloying qualities.—Melting point close to that of steel, extreme strength and resistance to corrosion claimed.—Page 220.

"I expect continued good demand for steel throughout the year," says John A. Topping.—Increased demand from railroads and farmers expected to offset possible declines in automotive and building industries.—Page 222.

Large tonnage of cast iron pipe orders carried over from last year.—1925 production of 1,350,000 tons not greatly affected by less than 50,000 tons imported; low price in East chief result of imports.—Page 249.

By-product coke capacity rated at 50,390,275 tons annually.—Represents approximately the same output as one year ago; new capacity offset by abandoned ovens.—Page 224.

Business outlook reported as "excellent" by 35 out of 100 metal-working plants.—56 call the outlook "good," 3 "fair" and only one thinks it will be "poor."—Page 224.

River-rail terminal to be built at Cincinnati for use of shippers of iron and steel products.—Car switching facilities planned to permit transshipment to any part of city.—Page 201.

New 14-in. merchant mill starts operation at River Rouge Plant of Ford Motor Co.—Completely inclosed motor room, electrification of all equipment and basement under practically all of mill building, feature new plant.—Page 197.

Iron and steel exports for year 2 per cent under 1924.—Shipments out of country for December one-sixth less than for previous month; year's total 1,762,952 tons.—Page 222.

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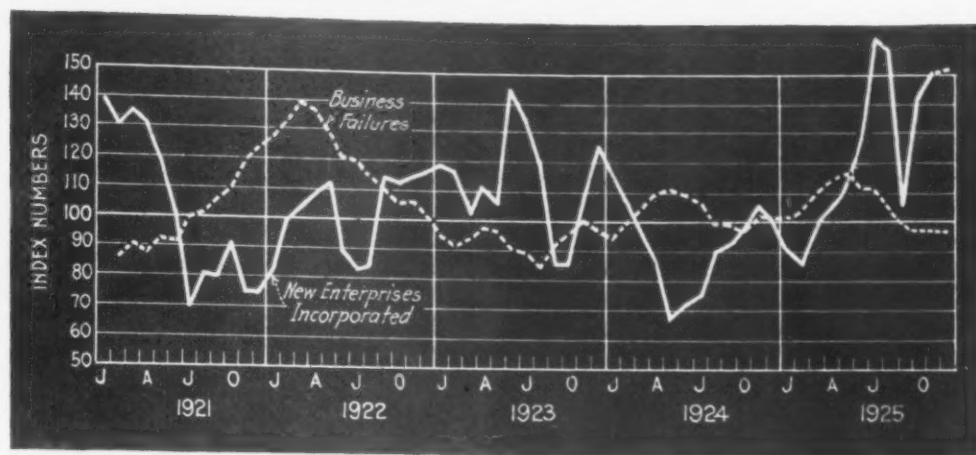
Psychology and Management

ASIDE from being the second case of a large user of steel products to embark upon the manufacture thereof, the new Ford merchant mill described in this issue is notable for the care taken to safeguard life and limb. Unusually massive gear coverings will be noted from the illustration on page 198. Breaking spindles on each side of the pinion housings are covered by sheet steel guards. Runout tables are, in many cases, inclosed. Protective railings abound.

And, further to develop esprit de corps, the mill and other foundation nuts and many other nuts, as well as lubrication piping, are nickel plated—for psychological effect. The aim of the management has been to make the mill a place in which the men will take pride in working and one where they can put forth their best efforts, without having to keep one eye on dangerously exposed equipment.

For News Summary See Reverse Side

Fig. 3 — Business Failures Are Decreasing and New Enterprises Are Record-Breaking for This Time of Year



next few months. Thus in Fig. 1 we note that the P/V line has moved slightly lower. It has now shown an irregular but fairly stable trend for a period of five months, and it is accordingly probable that a similar trend will be observed in the general condition of business for several months to come. The irregular and uncertain trend of the prices of basic commodities is having its effect on business. Our adjusted index of steel ingot production rose rather sharply in December. As usual it has swung upward more widely than the P/V line and at present shows signs of continuing upward for a longer time after the P/V line has ceased to rise than has been usual in the last two years. Steel producers will do well not to run too far beyond the level indicated by the barometer, for the further they proceed in that direction, the more severe will be the adjustment required. Judging by the past, ingot production is not likely to continue its recent gains beyond February.

Much the same story as that told by the P/V line may be read in the unfilled orders barometer (Fig. 2). Both the rate of change in unfilled orders and the price of steel scrap showed small downturns in December.

After allowing for the usual seasonal gain of about 2 per cent in unfilled orders, the increase in December was at a much smaller rate than in any of the last six months. This is one of the best industrial barometers and its downturn, though small, makes it highly probable that a little readjustment in the activity of the iron and steel industry will be required within two months. The unfilled orders barometer often anticipates the scrap market and its present trend makes it doubtful whether any strength will appear in that market in the near future.

Heavy melting steel scrap at Pittsburgh averaged \$19.10 in December, against \$19.50 in the preceding month. It has now held at \$19 for several weeks. The market appears stable, but rather weak with a slightly bearish trend.

Other Factors Show Uncertainty

ANOTHER sensitive barometer suggests that no appreciable expansion of business lies immediately ahead. This is the trend of new business enterprises

as shown in Fig. 3. After a sharp gain in October and November our adjusted index of new business enterprises showed a falling off in December which makes the three-month moving average used in the graph remain unchanged. The formation of new enterprises is still active, but its trend now suggests increasing caution.

On the other hand, the business death rate continues to decline gradually and the relatively small number of failures is a favorable indication. It shows that forced liquidations are quite normal in number.

Building Boom Not Over

That the termination of the building boom has not yet been reached appears in Fig. 4, which shows that the trend was upward in both November and December. Allowing for seasonal variation, the square feet of floor space in contracts awarded (as reported by the F. W. Dodge Corporation) has increased steadily since October and in December was nearly equal to the record level made in September.

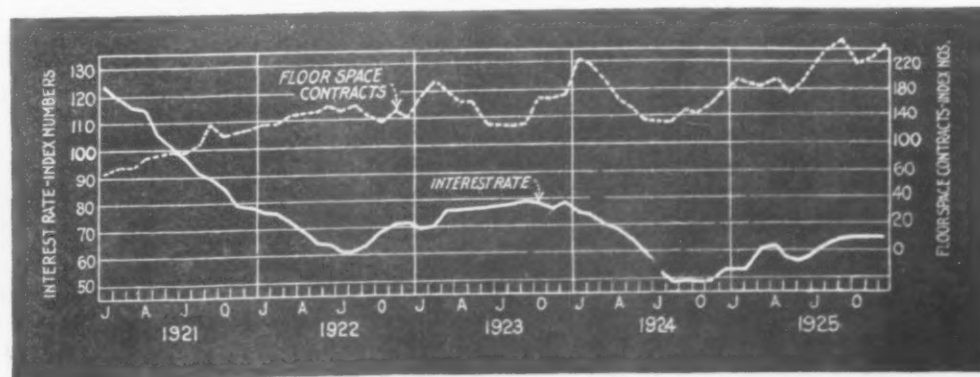
Building permits, as reported by Bradstreet's for 144 cities, also increased in December, but it should be noted that this increase was entirely due to speculative building in New York.

It seems probable that the peak of new building contracts may be reached in January or February, but that actual construction will proceed at a high rate for several months thereafter.

The gradual rise in the interest rate is one of the reasons for this conclusion. Recently there has been a seasonal easing in money rates, but it remains true that the trend is upward—though there is no reason to believe that any very high level of rates will be reached.

On the other hand, the trend of rents is clearly downward and has been so for about a year. With interest rates rising and rents decreasing, it seems probable that much further increase in building activity is not likely. This does not mean that any severe decline in building activity is probable, but it does mean that industry will have to adjust itself to a more stable and somewhat lower amount of such activity.

Fig. 4—The Rising Tendency of Interest Rates May Be Soon Reflected in Decreased Building Activity



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Steel Capacity Revision

BY action of its directors, the American Iron and Steel Institute approves the rating of its special committee putting the "practical capacity" of the country's steel works at 50,000,000 tons of ingots a year. The committee's report appears on another page. Along with this estimate of an output which it considers attainable in a year's operation of the country's steel works as they stand today, the committee suggests 56,000,000 tons as a figure that may be taken as the "theoretical" ingot capacity of the country. We understand that this 56,000,000 tons is approximately the total of the ratings of their capacity submitted to the committee by the various steel producing companies.

The pronouncement of a committee composed of the presidents of three companies which together have about 60 per cent of the country's ingot capacity will carry no little influence; and especially when the committee's survey was in the hands of so experienced a steel maker as the institute's secretary, E. A. S. Clarke. It does not yet appear, however, what steps the institute will take to give practical effect to the findings of its committee. Taking the 50,000,000-ton basis and knowing that roundly the steel ingot output last year was 44,000,000 tons, we have 1925 an 88 per cent year. Estimates previously made by the large steel companies, which were in line with their own monthly ratings of their respective operations throughout the twelve months, made 1925 an 82 per cent year. This percentage is identical with that which THE IRON AGE gave in its review of the year (issue of Jan. 7) based on an estimated annual capacity of 54,000,000 tons.

Apparently no effort was made, or will be made, by the institute's committee to revise the capacity ratings of individual steel companies, so as to make them total 50,000,000 tons, instead of the 56,000,000 tons which the committee accepts as theoretical capacity. The directory of the country's steel works, which is soon to be issued by the institute, will carry as heretofore the estimate each company makes of the steel it could turn out in a year with its existing open-hearth furnaces, Bessemer converters or other instruments of production. But having adopted the 50,000,000-ton basis, it would

be natural to expect the institute to use it in its monthly statistics of production.

How far the lowering of the capacity figure for the country will go as a market influence remains to be seen. Back of the resurvey of the country's capacity that has just been made there was the feeling that an unduly high capacity rating tended to depress the steel market by giving an exaggerated idea of potential supply. It is a question whether the buyer's judgment of conditions is not based on considerations of a more tangible nature—the attitude of sellers, firm or otherwise, and the other indices of the drift, whether in buyer's or seller's favor. There is also the consideration that if the rating for the industry is on a lower basis than that which the individual producer uses in determining the state of his own business, this producer may conclude that he is not getting his share of the trade.

From the standpoint of statistics that correctly reflect the state of the industry, the work of the committee is of high importance. It has fully justified the proposal for a survey of capacity on the basis of production attainable in the operations of a full year. It has also made available to the industry standards of measurement that should clarify the interpretation of its statistics and make them increasingly valuable to buyer and seller as an index of the market trend.

High Rate of Machinery Exports

WITH an outward movement of about \$375,000,000 in 1925, American machinery has reached a high level in world trade. The corresponding figure for 1924 was \$317,000,000, while 1923 showed \$288,000,000. It is pointed out by the Department of Commerce, however, that coincident conditions in the United States and in foreign lands have a large bearing upon the proportion of our machinery which is sent abroad.

Thus, in 1923, machinery classed as industrial was shipped to the extent of \$123,600,000, or only 8.8 per cent of the production of that year, which is given by the Census Bureau as \$1,404,000,000. In 1921, on the other hand, exports amounted to

\$208,800,000, or 23.2 per cent of the \$901,000,000 of production.

This complete turn-about, in which a year of small production shows much larger exports than a year of larger production, was due to trade conditions solely. During 1921 industry in the United States was suffering from an unusual depression, while the export trade still felt the stimulating influence of the post-armistice boom. In 1923 we had the reverse situation, for export business was exceedingly dull, due in part to the stalemate on the Ruhr, while domestic demand had expanded from less than \$700,000,000 (in 1921) to nearly \$1,300,000,000, thus resulting in a total production increase of 55 per cent.

Any discussion of export ratios must necessarily take account of all factors contributing to the momentary situation. Conditions abroad have been so different from those in the United States, during most of the post-war period, that it is impossible to make deductions from our own case which will fit the world at large.

More Reworking of Steel

TWENTY years ago, in 1906, the production of Bessemer steel in the United States reached its maximum. Last year's production was 5,500,000 tons, or 45 per cent, less. In the five years preceding the Bessemer peak, from 1900 to 1905, the basic open-hearth process gave evidence of its coming dominance, as in those five years it tripled in output, increasing from 2,500,000 tons to over 7,500,000 tons.

At that time, however, it was a serious question where the scrap was going to come from to permit the basic open-hearth process to expand indefinitely. Scrap from Bessemer works had previously been a feeder, but every ton of production switched from Bessemer to open-hearth would mean so much less outside scrap for the open-hearth, yet so much more demand for scrap.

Another interesting point was the constant effort to produce sounder ingots. It appeared that by as much as such efforts should succeed there would be less cropping and correspondingly less works scrap. The production statistics reflect no such change in the past 20 years. In 1906 the production of rolled steel was 76 per cent of the ingot tonnage. In 1923 and 1924 the mean of the proportions was 73½ per cent. The slight change may quite possibly be accounted for by the fact that the proportion of highly rolled material has increased.

Behind the statistics, however, lie two interesting stories. Really there has been an important increase in the soundness of ingots, also an important improvement in the quality of merchantable steel made. The statistics simply indicate that the two improvements have approximately balanced. If cropping today were according to the standards of 20 years ago, considerably less works scrap would be produced. Thus has one menace to the scrap supply been removed, the development being turned to use.

As to the return of steel for reworking, after a period of use, the trend of things has been in favor of the scrap supply. There have been various

changes, some of them obscure, others plainly discernible. One general point is that, as the area of the country does not increase, while transportation facilities improve and the store of iron per square mile increases, it grows more feasible to pick up the old material. It is not so easily lost.

In the case of the railroads, the more rapid return of scrap is clearly shown. In 20 years the track mileage of the steam roads has increased only 22 per cent, while the ton-mileage of freight moved has increased 146 per cent, so that the freight traffic density has slightly more than doubled. Much rail tonnage wears out year by year while little rail tonnage is required for laying new track.

With 310,000 producing oil wells, the oil industry has put a great deal of steel into the ground. Most of this steel eventually will be pulled out.

While the passenger automobile scarcely can reach a saturation point, it promises a quicker return of steel than any other important steel consuming line. Thus, even if the average life of an automobile became ten years and two-thirds of the building were for replacements, that would be, roughly speaking, equal to an average return in 15 years.

The change in, say, 20 years has wide influences. It puts a discount upon the general commercial value of a direct process, to make steel from the ore, and it puts a premium upon works practice in the sorting and classifying of scrap.

Metals Have Played Their Part

WITH much laying on of color, the picture has been put before us in these early days of 1926 of all that the first quarter of the 20th century did for the progress of the race. One got the impression in reading some of these reviews that the 1901-1925 period was credited with more than fairly belonged to it. Then he recalled that as 1901 came in it was commonly said that the last quarter of the 19th century had set the world further forward than had all the years that preceded. There should be no surprise, moreover, if the reviewer of January, 1951, gives the second quarter of the 20th century like distinction.

In iron and steel metallurgy the first quarter of the new century, though it will not be called epochal, made appreciably greater strides than the last quarter of the old. Twenty-five years ago no American steel was made in electric furnaces; today such furnaces produce large quantities of the highest grades. Almost no alloy steel was available in 1900; now over 2,000,000 tons a year of these steels are the backbone of important industries new and old. Heat treatment was in large part jugglery in the early years of the century; 1925 saw the art established on a new high plane by a large association of able metallurgists. No stainless steel was known as the 20th century came in; at the opening of the second quarter there are confident claims that the fight against rust is nearly won.

A remarkable advance has been made in the non-ferrous field. Aluminum, practically a rare metal in 1900, is now the basis of several light alloys equal to mild steel in strength and efficiency. Its kindred metal, magnesium, has taken a place in

industry both as a metal and as an alloying element; in 1900 it was only a chemical curiosity. The creation of new uses for nickel has revolutionized both the economic and metallurgical aspects of that industry. Alloys of metals almost unknown in 1900 are now familiar products.

In the iron foundry cast iron pipe is now produced in large tonnages by centrifugal processes; in 1900 there was only the old, slow sand process. The past year has seen a great increase in the use of permanent molds for both ferrous and non-ferrous castings. The electric furnace has made possible many forms of small castings which the foundry could not consider in 1900. Duplexing with the cupola has shown large promise.

The war years brought the production of synthetic pig iron electrically from scrap steel. The production of steel direct from the ore is passing from the dream stage to join the realities.

New light alloys have made possible the Liberty engine, and air transport on a commercial basis is just ahead. Tool steel, because of new combinations of metals, has gone forward rapidly and has set the machine tool industry in a new place of power. Heat treatment and alloy steels have increased both the size and the efficiency of the locomotive and in a large way have contributed to the smooth working of the country's transportation machinery that made 1925 the greatest of all years in American industry.

Gain in Commercial Arbitration

ADVOCATES of commercial arbitration are well satisfied with the progress of their crusade to create a workable substitute for litigation in the courts, and particularly are they pleased with the recognition of the principle in the United States Arbitration Act passed by Congress last year and made effective Jan. 1. Like the New York and New Jersey statutes, it contains the necessary teeth. Its intentions are stated in brief in the title: "An act to make valid and enforceable written provisions or agreements for arbitration of disputes arising out of contracts, maritime transactions, or commerce among the States or territories or with foreign nations." As a Federal statute it is confined to disputes between parties doing business in different States, and the amount involved must not

be less than \$3,000. Disputes within a State are subject only to the laws of the individual State.

These arbitration acts do not compel arbitration as a means of settling a business dispute, excepting where the contract involved contains a specific arbitration provision. The Arbitration Foundation, Inc., has framed a standard clause for insertion in contracts, subject to modification to fit special cases, as follows:

Any and all controversies arising under or out of or in connection with or relating to the agreement of which this is a part shall be submitted to arbitration, and judgment upon any award rendered may be entered in the highest courts of the forum, State or Federal, having jurisdiction in the premises.

Litigation between business houses has become more infrequent each year, especially with firms between which contracts are made. There are disputes, of course, but these usually yield to friendly adjustment. Even where the parties are so far apart in their views of justice as to make it impossible for them to agree of themselves, their attorneys as a rule are able to effect a settlement without going into court. The sales manager of a large manufacturing house having customers all over this country and in all parts of the world was unable to recall, when asked, a single case of litigation on a contract in which the company was a party either as buyer or seller. In other words, apart from statutes, arbitration in the settlement of business disputes has gone a long way in the natural evolution of business practice. Not the least important reason for this is the general recognition of the fact that the only sound basis of business is that of honest dealing.

There are exceptional conditions which breed business disputes. The relations between jobbers and the manufacturer of products subject to violent market price fluctuations are an example. Arbitration acts would have done far more good a generation ago than they can do today, for litigation on business contracts used to be rather common. Yet, the new statutes are much worthwhile. It is fairly claimed for them that an arbitrator chosen for his special knowledge of the matter at issue is usually better equipped to render justice than the average judge could be—certainly much better than the average jury—that less time is consumed, and that the expense averages much below that of court procedure.

Warwick Furnaces May Be Sold for Taxes

The Warwick blast furnaces at Pottstown, Pa., which have been operated for years by the Eastern Steel Co., Pottsville, Pa., on a long term lease from the owner, the Warwick Iron & Steel Co., were to have been sold for county taxes on Tuesday, Jan. 19, but by order of Judge Dickinson of the United States District Court in Philadelphia the sale was postponed, pending a hearing which was set for Jan. 29. Application for the stay was made by Edward L. Herndon, receiver for the Eastern Steel Co. The order issued by Judge Dickinson was served just as the auction sale by the sheriff on a tax foreclosure proceeding was about to begin. W. S. Pilling of Philadelphia and others, who are large stockholders in the Warwick Iron & Steel Co., were prepared to bid for the property.

There are three Warwick furnaces having a combined capacity of about 300,000 tons of pig iron annually, but because of the lack of sufficient auxiliary

equipment only two can be operated at a time. During the last few years it has been seldom that more than one was in operation and none of the stacks has been in blast since early in 1925 because of the unsatisfactory conditions in the Eastern pig iron trade from a profit-making standpoint.

The grounds for the objections to the sale by the Eastern Steel Co.'s receiver will be set forth at the Jan. 29 hearing, following which the court will probably decide whether the sale shall take place.

Standard specifications for corrugated metal pipe culverts adopted by the American Association of State Highway officials and approved by the Secretary of Agriculture for use in connection with Federal aid road work have been issued by the Department of Agriculture as Circular 231. Copies may be procured from the Superintendent of Documents, Government Printing Office, Washington, at 5c. each.



Bureau of Mines Expands Research

New Metallurgical Laboratories at Pittsburgh—Many Steel Problems to Be Studied

ATTENDED by members of the metallurgical advisory board of the Carnegie Institute of Technology and the United States Bureau of Mines, the new metallurgical laboratories of the Pittsburgh Experiment Station of the Bureau of Mines will be formally opened on the evening of Jan. 26. The advisory board is made up of prominent technicians, including men associated with the iron and steel industry in and near the Pittsburgh district. The new metallurgical laboratories at Pittsburgh are the outgrowth of an agreement, made in 1923, under which the Carnegie Institute of Technology appointed an advisory board for its department of metallurgy and arranged for cooperative research for fellowships in metallurgy at the Pittsburgh Experiment Station of the Bureau.

Certain problems in the metallurgy of iron and steel, previously conducted at the Bureau's station at Seattle, Wash., are being studied at Pittsburgh where the laboratories of the Carnegie institute will be available to supplement those of the bureau. Among the technical problems that are being studied by the newly established metallurgical section are the melting of sponge iron, reduction and carburization in iron smelting, mill ball compositions and preparations, abnormality in case carburized steels, non-metallic inclusions in steel and requirements for open-hearth refractories.

In the study of these problems the large technical staff of the Bureau of Mines will be assisted by members of the faculty of the Carnegie Institute of Technology and by the members of the metallurgical advisory board. Some of the investigations will be conducted largely in operating plants in and near Pittsburgh. Other agencies in close proximity, which will help facilitate the work, are the University of Pittsburgh, the Mellon Institute, and the Carnegie Library. The equipment of the new metallurgical laboratories includes a modern electric furnace laboratory, well arranged for fundamental work in many branches of the metallurgy of iron and steel; a metallographic and a chemical laboratory.

The metallurgical section of the Pittsburgh Experiment Station is under the general supervision of D. A. Lyon, assistant director and chief metallurgist Bureau of Mines, and S. P. Kinney, the supervising ferrous metallurgist. The latter correlates all of the ferrous work of the bureau and conducts blast furnace investigations. The work of the metallurgical section is directly in charge of the section chief, C. E. Sims, who is also the electrometallurgist of the bureau, and handles all work pertaining to electrometallurgy or the electric furnace.

F. W. Schroeder, a chemist, who has done graduate work in ceramics and extensive research work on refractories, will handle the work of the section having to do with the metallurgical requirement of refraction. B. M. Larsen, a chemical engineer, who has specialized in metallurgy, will conduct research problems in the

metallurgy of steel. A. K. Hutton handles the analytical work.

The problems to be studied by the four research fellows are temperature and heat flow in open-hearth furnaces, case carburized steel, and open-hearth refractories. The metallurgical section at Pittsburgh is one of the three metallurgical sections of the bureau working on ferrous metallurgy, the other two being at Minneapolis and Birmingham.

The Pittsburgh section will handle all electrometallurgical problems of the metallurgical division of the bureau except some relating to the electrothermic and the electrolytic treatment of zinc ores which are being studied at Rolla, Mo., and at Salt Lake City, Utah, respectively. To Pittsburgh, also will be consigned all those problems that involve the physicochemical reactions of steel and iron making. Work on these problems will include studies of the general reactions between metal, slag, and atmosphere, oxidation and deoxidation, desulphurization, dephosphorization, the effect of alloying materials, and studies of refractories under service conditions.

The metallurgical advisory board, which will assist in the work of the new laboratories, is composed of the following:

T. D. Lynch, research engineer Westinghouse Electric & Mfg. Co., East Pittsburgh (chairman); F. N. Speller, chief metallurgical engineer National Tube Co., Pittsburgh; Dr. James Aston, director of research A. M. Byers Co., Pittsburgh; F. B. Bell, president Edgewater Steel Co., Oskmont, Pa.; Earl Blough, technical director Aluminum Co. of America, Pittsburgh; V. B. Brown, general superintendent Allegheny Steel Co., Pittsburgh; Roy H. Davis, manager Park works, Crucible Steel Co. of America, Pittsburgh; A. N. Diehl, vice-president Carnegie Steel Co., Carnegie Building, Pittsburgh; George H. Faunce, president Pennsylvania Smelting Co., Pittsburgh; A. C. Fieldner, chief chemist Bureau of Mines and superintendent of Pittsburgh Experiment Station; James Graves, vice-president Duquesne Light Co., Pittsburgh; S. A. Grayson, president Jessop Steel Co., Washington, Pa.; J. O. Handy, director of special investigations Pittsburgh Testing Laboratory, Pittsburgh; O. H. J. Hartsuff, general superintendent Edgar Thomson Steel Works, Braddock; C. W. Heppenstall, president Heppenstall Forge & Knife Co., Pittsburgh; F. B. Hufnagel, president Pittsburgh Crucible Steel Co., Pittsburgh; Archibald Jones, metallurgist American Steel & Wire Co., Pittsburgh; D. A. Lyon, acting director and chief metallurgist Bureau of Mines, Washington; W. E. Moore, president Pittsburgh Electric Furnace Corporation, Pittsburgh; George H. Neilson, vice-president Braeburn Steel Co., Braeburn, Pa.; C. F. W. Rys, chief metallurgical engineer Carnegie Steel Co., Pittsburgh; S. G. Stafford, Vulcan Crucible Steel Co., Allquippa, Pa.; R. E. Zimmerman, assistant to vice-president American Sheet & Tin Plate Co., Pittsburgh, and Edward Steidle, Carnegie Institute of Technology, Pittsburgh (secretary).

TO EXTEND WASTE STUDY

Comprehensive Program Proposed at Engineering Council Meeting—New President Elected

A program of research continuing on a vast scale the "Assay of Waste" conducted by the American Engineering Council in 1921 under the presidency of Secretary Hoover of the Department of Commerce was proposed by a special research committee and approved by the assembly of the council at its annual meeting held at the Mayflower Hotel, Washington, Jan. 13, 14 and 15.

Dexter S. Kimball, dean of the College of Engineering, Cornell University, Ithaca, N. Y., was elected president of the council to succeed James Hartness, president of the Jones & Lamson Machine Co., Springfield, Vt., and former governor of Vermont. Gardner S. Williams, consulting engineer Ann Arbor, Mich., and Irving E. Moulthrop, Edison Electric Illuminating Co., Boston, were named vice-presidents, Mr. Williams being re-elected. Dr. Harrison E. Howe, Washington, was re-elected treasurer, and Lawrence W. Wallace, Washington, was again chosen executive secretary.

Eight nation-wide engineering studies into conditions on the farms and in factories and among the workers are proposed. The sub-normal man and woman, laws which retard America's progress, the prodigal use of natural resources, the reclamation of unfit humans, and

the population gaps opened up by restrained immigration are considered to be tasks in which the engineering profession, through the council, is called upon to lead "in the interest of human welfare and economic value."

Five years will be required to carry out this program of research and the cost is estimated at \$335,000. Dr. Harrison E. Howe is chairman of the special research committee, other members of which are L. P. Alford, representing the American Society of Mechanical Engineers, E. S. Cowdrick, Society of Industrial Engineers; Ray M. Hudson, chief of the Division of Simplified Practice of the Department of Commerce, and L. W. Wallace.

One study will be devoted to waste in agriculture and a second will take up waste in industries based on agriculture. Waste of power is a third study proposed, and the reclamation of materials wastes is another, each of the foregoing requiring one year of research. An investigation called "the engineering approach to the labor supply" would require six months and one into the training and employment of the incapacitated would take one year. In the field of industrial fatigue the committee urges an inquiry occupying five years and costing \$125,000. A two-year quest into the integration of industry is proposed. The committee urges that the study of waste in agriculture include especially such engineering phases as farm power and farm implements.

DECEMBER SHEET SALES

Off from November as Was Also the Production—Shipments Held Up

Shipments of steel sheets held up well last month, the monthly report of the National Association of Sheet and Tin Plate Manufacturers discloses, running just about 1000 tons less than in November. Sales showed a substantial loss, running 50,857 tons behind those for the month before, while production was almost 10,000 tons less in December than in the month before. For some reason, not apparent in a casual analysis of the figures, there was a jump of 41,337 tons in the unfilled orders. That item at the end of December stood at 677,907 tons, as compared with 636,570 tons one month before.

Release of the December figures makes possible a presentation of the year's record. This shows total sales of 3,279,374 tons, production of 3,521,985 tons and shipments of 3,193,872 tons. The figures follow:

	—1925—			1924
	December	November	October	December
No. of mills reporting	712	714	709	701
Capacity per month, tons	433,760	416,000	437,000	422,000
Per cent reporting	74.9	74.9	74.8	74.7
Sales, tons	319,504	376,361	403,491	350,868
Production, tons	326,960	336,021	348,714	259,794
Shipments, tons	293,579	294,660	332,211	229,573
Unfilled orders, tons	677,907	636,570	595,583	663,460
Unshipped orders, tons	126,326	107,177	83,244	85,856
Unsold stocks, tons	39,155	36,105	40,200	45,743

Sheet Mill Tonnage Wage Rates Remain Unchanged

Tonnage rates paid sheet and tin mill workers in Mid-Western mills operating under the sliding scale wage agreement of the Amalgamated Association of Iron, Steel and Tin Workers continue for January-February at 28½ per cent above base. At the bi-monthly examination of sales sheets last week in Youngstown, the average price of Nos. 26, 27 and 28 gage black sheets shipped during the 60 days ended Dec. 31 last was \$3.10 per 100 lb. This is unchanged from the settlement two months previously, and tonnage rates therefore continue without change.

It is expected that rates will advance for the March-April period, as higher prices have been made effective in the meantime by Mid-Western mills reporting to the Western Sheet and Tin Plate Manufacturers Association. The unchanged average selling price likewise indicates

that higher prices announced by the mills did not generally become effective until the first of the year.

James H. Nutt, of Youngstown, represented employers at the conference, and M. F. Tighe of Pittsburgh, president of the Amalgamated association, acted for the wage earners. Since last June, following the annual wage conference at Atlantic City, tonnage rates of tin mill employees have been adjusted according to the selling price of Nos. 26, 27 and 28 gage black sheets. Prior to that time the adjustment was made on the basis of the average selling price of tinplate per base box.

Beryllium and Its Possibilities as an Alloying Metal

Beryllium, a hard white metal, 33 per cent lighter than aluminum and declared to have remarkable properties, may find an extensive commercial use as a result of the development of a process for the production of this metal at a cost that it is believed will permit its use as an alloy with aluminum and other light strong alloys. The process has been developed by the Kemet Laboratories Co., Inc., 4503 Euclid Avenue, Cleveland, after several years' research work.

Beryllium is made from an ore, known as beryl. As a metal it has been made only in very small quantities and it is said that the world supply before the war was only four ounces. It has a high melting point, melting at 1275 deg. C., or nearly the melting point of steel, as compared with 658 deg. C., the melting point of aluminum. It is stated that it forms a range of alloys with aluminum in all proportions of either metal and, to the extent of its presence, imparts its own properties, making a metal having greater resistance to corrosion, higher melting point, lighter weight and increased strength. Alloyed with copper, it makes a bronze of extreme hardness and of various brilliant colors. A small percentage added to silver, it is stated, increases its hardness in the same manner as copper and makes it non-tarnishable. A pound of the metal formerly cost \$5,000, it is stated, but now it is being offered at an arbitrary price of \$200. However, it is believed that, with production facilities on a fair-sized scale, it can be made at \$20 per lb.

The rights to its manufacture have been sold to the Beryllium Corporation of America, recently organized by a group of New York men. This company has fitted up an experimental plant in Cleveland where the metal is being made in pound quantities and will be supplied to research laboratories for experimental work.

MINING ENGINEERS

Steel and Non-Ferrous Technical Programs for Annual February Meeting

The technical programs for the iron and steel section and for the Institute of Metals Division of the American Institute of Mining and Metallurgical Engineers, during the 133d meeting, at the Engineering Societies Building, New York, Feb. 15 to 18, are as follows:

Iron and Steel

Monday, Feb. 15—2 p. m.:

DR. J. A. MATHEWS, Chairman

- "The Current Theories of the Hardening of Steel, Thirty Years Later," by Albert Sauveur, Professor of metallurgy, Harvard University.
- "A Photomicrographic Study of the Process of Re-Crystallization in Certain Cold Worked Metals," by V. N. Krivobok, research associate Carnegie Institute of Technology.
- "Introduction to Ultra Violet Metallography," by F. F. Lucas.
- "The Effect of Annealing Upon the Hardness of Cold Worked Ingot Iron," by Charles Y. Clayton, department of metallurgy, Missouri School of Mines.

Tuesday, Feb. 16—2 p. m.:

PROF. BRADLEY STOUGHTON, Chairman

- "Influence of Temperature, Time and Rate of Cooling on Physical Properties of Carbon Steel," by Francis B. Foley, metallurgist Lucey Manufacturing Corporation, Chattanooga; Charles Y. Clayton, department of metallurgy Missouri School of Mines and W. E. Remmers, Mechanical Engineering Department, Washington University, St. Louis, Mo.
- "Effect of Air Gap in the Explosion System on the Production of Neumann Bands," by Francis B. Foley and J. E. Crawshaw.
- "The Iron Tungsten System," by W. P. Sykes, metallurgist National Lamp Works, Cleveland, Ohio.
- "Delta Iron in the Iron Chromium Alloys," by E. C. Bain, metallurgical engineer Union Carbide & Carbon Research Laboratories.
- "Economic Significance of Cyanide Accumulation in the Blast Furnace," by Richard Franchot, chemist Ferro-Chemicals, Inc., Washington.

Wednesday, Feb. 17—10 a. m.:

J. V. W. REYNOLDERS, Chairman

Report Sub-Committee on Open-Hearth Steel.

- "Elimination of Metalloids in the Basic Open-Hearth Process; the Log of a Hundred Ton Basic Open-Hearth Heat," by J. L. Keats and C. H. Herty, Jr., chemical engineer Lackawanna Plant, Bethlehem Steel Corporation, Lackawanna, N. Y.

Institute of Metals

Monday, Feb. 15—2 p. m.:

A. E. WHITE, Chairman

- "Effect of Reheating upon the Al-Cu-Ni-Mg and the Al-Cu-Fe-Mg (Piston) Alloys," by Samuel Daniels, metallurgical engineer Air Service, U. S. A., McCook Field, Dayton, Ohio.
- "Endurance Properties of Non-Ferrous Metals," by D. J. McAdam, Jr., metallurgist U. S. Naval Engineering Experimental Station, Annapolis, Md.
- "The Lead Antimony System and the Hardening of Lead Alloys," by R. S. Dean; L. Zickrick, metallurgical engineer Hawthorne Plant, Western Electric Co. and F. C. Nix.
- "A Preliminary Study of Magnesium Base Alloys," by Prof. Bradley Stoughton, Lehigh University, and M. Myake.

Tuesday, Feb. 16—2 p. m.:

DR. ZAY JEFFRIES, Chairman

- "Equilibrium Relation in Aluminum-Copper Alloys of High Purity," by E. H. Dix, Jr. and H. H. Richardson.
- "An Atomic Picture of Duralumin and its Crystal Structure," by Robert J. Anderson, consulting metallurgical engineer, Boston, Mass.
- "The Effect of Heat Treatment on the Microstructure of Duralumin Sheet," by Robert J. Anderson.
- "Modification and Properties of Sand-Cast Aluminum-Silicon Alloys," by Robert S. Archer, metallurgist Aluminum Co. of America, Cleveland, and L. W. Kempf.
- "The Microstructure of Aluminum," by K. L. Meissner.

Wednesday, Feb. 17—10 a. m.:

C. H. WITHERELL, Chairman

- "The Hardness of Copper," by Samuel L. Hoyt, General Electric Co., Schenectady, N. Y., and T. R. Schermerhorn.
- "The Effect of Lead and Tin with Oxygen on the Conductivity and Ductility of Copper," by Norman B. Pilling, metallurgist International Nickel Co., Bayonne, and George P. Halliwell.
- "Exudations on Copper Castings," by W. H. Bassett, technical superintendent American Brass Co., Waterbury, Conn., and J. C. Bradley, metallurgist American Brass Co., Waterbury, Conn.
- "The Microscopical Structure of Copper," by H. B. Pulsifer, metallurgist Beryllium Corporation of America, Cleveland, Ohio.

Wednesday, Feb. 17—2 p. m.:

S. SKOWRONSKI, Chairman

- "Some Examples of Copper Made Brittle by Hot Reducing Gases," by T. S. Fuller, metallurgist research laboratories, General Electric Co., Schenectady, N. Y.
- "Action of Reducing Gases on Heated Copper," by W. H. Bassett, technical superintendent American Brass Co., Waterbury, Conn., and J. C. Bradley, metallurgist American Brass Co., Waterbury, Conn.
- "The Annealing of Commercial Copper to Prevent Embrittlement by Reducing Gases," by S. B. Leiter.
- "The Estimation of Oxygen and Sulphur in Refined Copper," by W. H. Bassett, technical superintendent American Brass Co., Waterbury, Conn., and H. A. Bedworth.

The subject of the annual Henry M. Howe Memorial Lecture, to be delivered by Prof. William Campbell, Columbia University, is "Twenty-five Years in Metallography."

"The Relation Between Metallurgy and Atomic Structure" is the title of the annual lecture of the Institute of Metals division, delivered this year by Dr. Paul D. Foote, Bureau of Standards, Washington.

At a session on non-metallic minerals, on Monday morning, Feb. 15, several papers will be presented on molding sands, among which are "The Mining and Preparation of Molding Sands" by R. M. Bird, Pettinos Brothers, Philadelphia; "The Use of Standard Tests for Molding Sands" by Prof. H. Reis, Cornell University; "Washing and Sizing Sand and Gravel" by Edmund Shaw, editor *Rock Products*, Chicago, and "Magnesite and Magnesite" by Prof. H. M. Henton, Pullman, Wash.

J. G. Brill Co. to Be Controlled by American Car & Foundry Co.

Subject to approval by stockholders, which is said to be assured, the J. G. Brill Co., Philadelphia, manufacturer of street railroad cars and gasoline-propelled locomotives, will pass to the control of the American Car & Foundry Co., 165 Broadway, New York. A new company to be known as the Brill Corporation will be formed and will acquire 60 per cent or more of the stock of the J. G. Brill Co. and more than 50 per cent of the preferred and 67 per cent or more of the common stock of the American Car & Foundry Motors Co., a Delaware corporation recently organized by the American Car & Foundry Co. The American Car & Foundry Motors Co. owns all of the capital stock of the Hall-Scott Motor Car Co. of California and 90 per cent of the stock of the Fageol Motors Co. of Ohio. The American Car & Foundry Co. will own control of both the Brill Corporation and the American Car & Foundry Motors Co., but the form of financial organization outlined has been designed to preserve the individuality of the companies in their respective fields of manufacture.

Makers of Buses and Motors

The Fageol Motors Co. has engaged extensively in the manufacture of motor buses, while the Hall-Scott Motor Car Co. is known for the manufacture of motors. It is possible that one or more of the plants of the American Car & Foundry Co. will be partly utilized for the manufacture of motor buses under the new amalgamation of interests.

PROSPECTS FOR 1926

John A. Topping Outlines Also Buying Influences of Normal Year

In discussing the prospects before the steel industry for the year 1926, John A. Topping, chairman Republic Iron & Steel Co., described in the *Annalist* of Jan. 8, the "succession of buying influences which might be called the normal year's course under ordinary circumstances.

"Generally speaking," he explained, "past experience shows that steel purchasing slackens during the fourth quarter of each year, this situation being largely influenced by consumers taking account of stock, as a preliminary step to the resumption of the new year's business.

"At the beginning of each year the purchasing movement usually suggests restocking necessities, supplemented in part, to a greater or less extent, by prospective constructive requirements.

"During the second quarter of the year a general appraisal of the business situation is usually made by steel consumers, condition of crops and outlook for harvest being of special importance as influencing the purchasing policy at that time.

"During the third quarter the size of the harvest

is known, and the business situation is naturally influenced not only by the size of the crops but by prices realized for farm products."

As to 1926, Mr. Topping wrote: "I expect a continued good demand for steel throughout the year, with a total production probably closely approaching that of 1925, which was apparently a record year.

"More specifically, the present low price level for steel tends in itself to broaden demand; and on the side of probable demand, while there are some chances or even probabilities of shrinkage from last year's volume, these possible shrinkages appear to me unlikely to be large, and likely, moreover, to be offset by increased demand in certain other directions.

"Some decrease in demand from building construction and the automobile industry is possible, but this is likely to be offset by increased demand from the railroads and from the farmers of the country. In respect to the railroads there seem to be strong reasons for expecting a much larger purchasing program of cars and motive power this year than in 1925. Such an enlarged purchasing program is made logical by the severe use of rolling stock in the past year, with consequent heavy retirement of older cars; by the near approach of traffic in the last six months to the maximum capacity of the railroads, and, finally, by large railroad earnings which supply the funds for carrying out such a program."

STEEL EXPORTS DROP

December One-Sixth Below November, But Better Than in 1924—Year 2 Per Cent Under 1924

WASHINGTON, Jan. 19.—Exports of iron and steel from the United States in December declined to 142,177 gross tons, as against 171,134 tons in November, according to figures given out today by the Iron and Steel Division, Department of Commerce. For the calendar year 1925 exports totaled 1,762,952 tons, compared with 1,805,114 tons for 1924.

Simultaneously with the announcement of American iron and steel exports, the division gave out British iron and steel import and export figures. These show that British exports in December totaled 340,825 tons, while for the 12 months they amounted to 3,731,023 tons. Imports into Great Britain in December totaled 249,521 tons, while for the year they were 2,721,003 tons.

December import figures for United States trade are not as yet available. The largest single item of exports from the United States in December was welded pipe, amounting to 17,207 tons. Tin plate ranked second, with 13,001 tons. Among other important items were galvanized sheets, 12,410 tons; black sheets, 11,357 tons; plate, 9933 tons; steel bars, 9859 tons, and plain shapes, 9640 tons.

Trade Commission to Hold Hearings in Aluminum Case

WASHINGTON, Jan. 19.—The Federal Trade Commission has announced that it will begin hearings in Pittsburgh on Feb. 15, in connection with its complaint against the Aluminum Co. of America. The commission charges the use of various methods of unfair competition in an effort to create a monopoly in the sale of raw aluminum and aluminum products. As is well known, the aluminum case has been thrown into politics and is the subject of a hearing before a Senate committee headed by Senator Walsh, Democrat, of Montana. The committee hearing is an inquiry into the action of the Department of Justice in connection with charges that the Aluminum company had violated a consent decree by which two companies, which it had taken over, agreed not to engage in the production of aluminum.

Senator Walsh is attempting to show that the Department of Justice has been lax in proceeding against

the company, of which Secretary of the Treasury Mellon is a prominent stockholder. Attorney General Sargent and his subordinates are vigorously defending the activities of the Department of Justice, in an effort to show that it has made careful inquiry into the case, so far without disclosing evidence of violation of the consent decree by the Aluminum company.

Central of Georgia Asks Bids on 34 Tools

The Central of Georgia Railroad is asking bids until Jan. 28 on the following motor-driven tools:

For Macon Shops

- One 36-in. piston rod grinder.
- One 18-in. Dill slotter, or similar machine.
- One No. 20 Pels, or similar, punch and shear.
- One 4-ft. radial drill.
- One 8-ft. cornice brake for bending No. 16 or lighter iron.
- One 1-in. x 12-in. double floor grinder.
- Two 3-in. x 18-in. double floor grinders.
- One 7-in. Libby turret lathe, or similar machine.
- One heavy-duty stamping press.
- One 24-in. Gould & Eberhardt shaper, or similar machine.
- One 2-in. triple-head Acme bolt cutter, or similar machine.
- Two 5-in. Pratt & Whitney double-spindle centering machines.
- One 18-in. heavy-duty portable lathe.
- One 14-in. x 6-ft. heavy-duty portable lathe.
- One 18-in. x 8-ft. heavy-duty lathe.
- Three power hack saws similar to Marvel No. 2.
- One No. 4 universal miller.
- One 54 x 16 Ingersoll slab miller.
- Four 14-in. sensitive drills.

For Other Shops

- One 54-in. Bullard Maxi-Mill, or similar machine.
- One 3-in. x 18-in. double-grinder.
- One No. 20 combination punch and shear.
- One 4-ft. heavy-duty semi-automatic radial drill press.
- One 2-in. x 18-in. double-floor grinder.
- One 75-ton hydraulic bushing press.
- One portable valve facing machine.
- One 4-ft. radial drill.

The Louisville & Nashville is taking bids on four 16-in. engine lathes.

Production of nitrate by the new Guggenheim process near Tocopilla, Chile, is expected to reduce manufacturing costs. The engineering problem is reported to have been solved to the extent of recovering 90 per cent of the available nitrate as compared with a previous 55 per cent. Separation by filtration after crushing and extracting is to be carried out by means of vacuum leaf filters furnished by the Industrial Separators Co., New York.

FOREIGN BUYING LIGHT

Japanese Rail Inquiries—Another American Railroad Considers Foreign Rails

NEW YORK, Jan. 19.—Inquiry from all foreign markets continues exceedingly light, even the usual volume of municipal and large company inquiries from Japan having failed to materialize in the past couple of weeks. The Chinese market is quiet with the approach of Chinese New Year, about the only current business being in small lots of second hand steel plates and tin plate waste. Although there is still a fair volume of inquiry for light gage black sheets from Japan, the firmness of the market is somewhat of a deterrent to actual business. In addition, one of the large independent mills, which has been quoting as low as \$84 per ton, c.i.f. Japan on black sheets, 13 to the bundle, has withdrawn from the market temporarily, leaving the quotable price today at about \$85 per ton or more, c.i.f. Japan.

About the only inquiries under consideration from Japanese sources have been a lot of 35 miles of 60-lb. rails from a privately owned railroad in Japan and 250 tons of tie plates for 100-lb. rails from the South Manchuria Railway Co. European competition for struc-

tural steel and rail business in Japan is reported to be particularly keen, the "Calumeta," an association of Luxemburg and Belgian mills being among the most aggressive seekers for orders.

In competition with German machine shops, the Hardie-Tynes Mfg. Co., Birmingham, has recently taken contracts in Chile for considerable foundry and machine work at copper operations. Further contracts for this work are expected.

The volume of sizable inquiry for various products on which foreign quotations are said to be acceptable is increasing. The latest addition is reported to be specifications by a railroad in the South calling for 10,400 tons of rails; 6000 tons of 80-lb., 3400 tons of 75-lb. and 1000 tons of 56-lb. sections. At present none of the large lots of material under inquiry, on which foreign bids have been taken, has been awarded. The principal business is still in lots of a few hundred tons of reinforcing bars and structural material.

In Spain, American agricultural implements share the market equally with German, according to a recent cable from Commercial Attaché Cunningham at Madrid. American and German products secure about two-thirds of the total business. American machine tools are also in demand but the decline in the French franc has introduced additional competition from French tool builders.

Fix Rates on Fabricated Tank Material and Rig-Iron Outfits

WASHINGTON, Jan. 19.—Rates on fabricated tank material from Parkersburg, W. Va., to Riverton, Wyo., were fixed at \$1.735 per 100 lb., while those on rig-iron outfits from and to the same points were established at \$1.69 by the Interstate Commerce Commission, in an opinion announced yesterday. It was handed down in connection with a complaint of the Parkersburg Rig & Reel Co., protesting against the payment of a rate of \$1.925 on the tank material and \$1.99 on rig-iron outfits. The commission also held that present rates will be unreasonable to the extent they exceed, on fabricated steel tank material, the rate maintained on structural iron and steel and on rig-iron outfits, 85 per cent of the rate maintained on oil-well outfits and supplies. Reparation was awarded.

Freight Rate on Structural Material from Pittsburgh to Canton

WASHINGTON, Jan. 19.—The rate of 17.5c. per 100 lb. on structural material from Pittsburgh to Canton and Massillon, Ohio, was held to be the maximum reasonable freight charge in a decision announced yesterday by the Interstate Commerce Commission. This is the rate prescribed in the American Shipbuilding Co. decision. The opinion grew out of a complaint by the Canton Bridge Co., and other fabricators at Canton and Massillon, against the fifth class rate of 20c. Reparation was awarded to the complainants.

Canada's Iron and Steel Warehouse Trade

Drummond, McCall & Co., Ltd., Montreal and Toronto, have issued an eight-page folio under the title "Iron and Steel Warehousing in Canada." Accompanying the text are 10 interior views of the company's warehouses indicating the storage and handling facilities for various descriptions of finished steel. The distinctive features of iron and steel jobbing in Canada are emphasized in the descriptive matter. The foremost problem is that of carrying the variety of sizes which the Canadian market requires, seeing that the standards of that market in many lines approximate American standards, while the demand is on a much smaller scale than that which American jobbers serve. There is also the difference that, while American iron and steel warehouses can readily obtain supplies from domestic plants, the Canadian warehouse finds it neces-

sary in several lines to carry two sets of stock, the one composed of domestic and the other of imported material. As indicating the variety of stocks called for in Canada, it is stated that in high grade bar iron three descriptions are carried—Netherton, Swedish and Best Yorkshire—and in boiler and mechanical tubing 125 different sizes and gages.

Fluorspar Investigation by Tariff Commission

WASHINGTON, Jan. 19.—Acting upon a complaint by domestic producers who seek an increase of 50 per cent in the duty on fluorspar under the flexible provision of the tariff act, the Tariff Commission has ordered an investigation regarding that product. The present duty is \$5.60 per ton. The complaint is understood to state that imports of fluorspar are large and that prices of the foreign material are so low that domestic producers cannot compete.

Wholesale Prices Moving Downward

Index numbers of wholesale prices covering 404 commodities reported upon by the Bureau of Labor Statistics, Washington, dropped from 157.7 in November to 156.2 in December. Both figures are close to the 157 of December, 1924. Nearly all of the main groups moved in accordance with the total, building materials, rising from 175.6 to 177, showing the only divergence. Metals and metal products at 129.5 continue to hold the lowest position of all groups. The iron and steel component of this group at 137 is well below the 142.8 of a year ago, while the non-ferrous metals at 113, although below the 116 of November, is above the 110.9 of a year ago.

Italy Increases Iron and Steel Production in 1925

WASHINGTON, Jan. 16.—Italy produced 400,000 metric tons of pig iron and 1,500,000 tons of raw steel during 1925, according to recent estimates cabled to the Department of Commerce. In 1924, the output was 267,000 tons of pig iron and 1,200,000 tons of steel. The opening of 1926 finds the volume of new business limited. However, plants are still active and the report says there is little danger of a serious crisis. Steel production in 1925 made a new high record, displacing the 1,311,000 tons of 1917.

By-Product Coke Plants Stationary

New Capacity Offset by Abandoned Ovens and More Conservative Rating of Others

BY-PRODUCT coke oven capacity built or building in the United States, as of Jan. 1, is estimated to be capable of producing 50,390,275 tons of coke annually. This represents about the same as a year ago. Much new capacity has come into use in the past year, but a good many obsolete ovens reckoned as available capacity a year ago have passed out of the picture. Others have been re-rated, on a lower basis. The accompanying table embraces only the capacity that is or later will be available.

The Carnegie Steel Co. still has standing the old by-product ovens at Farrell, Pa., but they have not been operated for several years, and it is officially stated they never again will be used. This plant consisted of 212 United-Otto ovens with a rated capacity of 531,000 net tons of coke annually. The plant of the Penn Iron & Coal Co., Dover, Ohio, a battery of 24 Roberts ovens with a rated capacity of 100,000 tons of coke annually, and that of the Allegheny By-Products Coke Co., Glassport, Pa., consisting of 120 United-Otto ovens with an annual capacity of 182,000 tons of coke, have been dropped from the list also because, while still intact, they will never again be operated. These losses total 356 ovens and 813,000 tons of coke annually. The Bethlehem Steel Co. now reports a total of 1704 ovens at its several plants with an annual coke capacity of 6,957,400 net tons. A year ago it was credited with 2210 ovens, having a coke capacity of 8,094,700 tons a year. That measures a loss of 1,137,000 tons of coke a year.

New Ovens Becoming Active

During 1925, 332 ovens, reported a year ago as building, were completed and placed in operation, as were 37 Wilputte ovens for the Perry Iron Co., Erie, Pa., construction of which was started and completed

within the year. These installations have a total capacity of 3,021,400 tons of coal, from which there is expected a yield of 2,114,200 tons of coke. Besides the Perry Iron Co. plant, they include 57 Koppers-Becker ovens for the Republic Iron & Steel Co. at Thomas, Ala.; 40 Koppers ovens for the Woodward Iron Co., Woodward, Ala.; 55 Foundation ovens for the Hudson Valley Coke & Products Corporation, Troy, N. Y.; 25 Koppers ovens for the Alabama By-Products Coke Corporation, Birmingham, Ala.; 110 Koppers-Becker ovens for the By-Products Coke Corporation, South Chicago; 11 Koppers-Becker ovens for the Lynn Gas & Electric Co., Lynn, Mass.; 19 Koppers-Becker ovens for the Northern Indiana Gas & Electric Co., Fort Wayne, Ind., and 15 Koppers-Becker ovens for the Consumers Power Co., Jackson, Mich.

Now under construction and forming potential capacity for later in the year are 539 ovens, with an annual coal capacity of 4,507,900 tons and a coke output of 3,555,550 tons. The Illinois Steel Co. is building 138 Koppers-Becker ovens at Gary, Ind.; the Inland Steel Co., 73 Koppers-Becker ovens at Indiana Harbor, Ind.; the Jones & Laughlin Steel Corporation, 60 Wilputte ovens in Pittsburgh and 122 Koppers-Becker ovens at Woodlawn, Pa.; the Wheeling Steel Corporation, 51 Koppers-Becker ovens at East Steubenville, W. Va.; the Consolidated Gas Co., 74 Koppers-Becker ovens at Hunts Point, N. Y., and the Utica Gas & Electric Co., 21 Koppers-Becker ovens at Utica, N. Y.

Plants of the Dunbar Corporation, Dunbar, Pa., with 110 ovens capable of producing 173,000 tons of coke annually, and of the Coal Products Mfg. Co., Joliet, Ill., with 53 ovens with a rated coke output of 238,000 tons a year, are idle. Deducting the capacity building and that not operating leaves the real capacity of the country today at 46,423,725 tons of coke a year.

Good Business Outlook in Metal Trades

The business outlook for 1926 was pronounced excellent by 35 of 100 selected metal-working plants in answer to a questionnaire sent out by the National Metal Trades Association, Chicago. Fifty-six plants described the outlook as good, three called it fair and one said it was poor. Eighty-five per cent of the plants questioned reported an increase in production per man during the past year. Among the means used to increase output, 24 plants mentioned better tools, 28 named improved methods, 23 emphasized organization and supervision, 8 named a follow-up system, and 17, extra wage incentives.

Water Shipments of Lake Superior Iron Ore in 1925

Of the ore shipments by water from the Lake Superior district in 1925, 34,842,917 tons, or close to 65 per cent of the total of 53,540,502 tons, were of the non-Bessemer grade, according to figures compiled by the Lake Superior Iron Ore Association. Shipments of this grade from the Mesabi range amounted to 24,155,458 tons. The amounts of other grades shipped during the year were: Bessemer, 15,004,301 tons; manganiferous, 2,155,060 tons; silicious, 1,075,248 tons; aluminous, 462,976 tons.

Aluminous ore, shipments of which increased during the year, were listed separately for the first time, this grade heretofore having been included in non-Bessemer ore. Total shipments from the Mesabi range were 35,170,391 tons. Shipments from other ranges were

Gogebic, 6,597,855 tons; Menominee, 5,141,912 tons; Marquette, 3,899,032 tons; Cuyuna, 1,388,394 tons, and Vermilion, 1,342,918 tons.

These figures are based on bill of lading weights which are 1 per cent less than the railroad weights which the association uses in computing the season's shipments.

Record Car Loadings in 1925 Handled Without Congestion

WASHINGTON, Jan. 9.—Predictions of railroad authorities during the past year that 1925 would see the greatest freight traffic on record, measured by the number of cars loaded with revenue freight, proved accurate. The American Railway Association, in announcing that such a record had been made, according to complete returns from the carriers, said that loading of revenue freight for 1925 amounted to 51,177,962 cars. This was an increase of 2,643,529 cars, or 5.4 per cent, over 1924, and of 1,365,849 cars, or 2.7 per cent, over 1923, the previous record year. It was also an increase of 6,059,490 cars, or 13.4 per cent, over 1920, the record year next before 1923, while it was a still greater increase over 1921 and 1922.

The report says the record traffic of 1925 was handled without transportation difficulties and with practically no great shortage. Instead, it was pointed out, the rail carriers have had at all times during the year no less than 103,000 surplus freight cars in serviceable condition, while they have also had at all times not less than 4200 surplus serviceable locomotives.

IRON AND STEEL COMPANY BY-PRODUCT COKE PLANTS

Name	Location	No. of Ovens	Kind of Oven	Annual Capacity Net Tons	
				Coal	Coke
American Steel & Wire Co., Cleveland.....		180	Koppers	1,080,000	756,000
Ashland By-Product Coke Co., Ashland, Ky.....		108	Semet-Solvay	864,000	648,000
Bethlehem Steel Co., Bethlehem, Pa.		424	Koppers	2,195,200	1,568,000
Steelton, Pa.		180	120 Semet-Solvay	508,000	362,900
Lebanon, Pa.		90	60 Koppers	432,800	309,100
Sparrows Point, Md.		300	Semet-Solvay	376,300	268,800
Lackawanna, N. Y.		174	Koppers	2,116,800	1,512,000
Johnstown, Pa.			60 Semet-Solvay	470,400	336,000
Rosedale			114 Koppers-Becker	940,800	672,000
Franklin		208	120 Cambria-Improved	677,400	483,800
			88 Semet-Solvay	705,600	504,000
			92 Koppers	498,600	356,200
		328	136 Cambria-Improved	564,500	403,200
			100 United-Otto	254,000	181,400
Total, Bethlehem Steel Co.		1,704		9,740,400	6,957,400
Carnegie Steel Co., Clairton, Pa.		1,134	768 Koppers	8,085,000	5,659,500
Central Iron & Coal Co., Holt, Ala.		60	366 Koppers-Becker		
Colorado Fuel & Iron Co., Minnequa, Colo.		120	Semet-Solvay	290,000	220,000
Columbia Steel Corporation, Provo, Utah.		33	Koppers	720,000	504,000
Donner-Hanna Coke Corporation, Buffalo.		150	Koppers-Becker	365,000	255,500
*Dunbar Corporation, Dunbar, Pa.		110	Koppers	1,000,000	700,000
Ford Motor Co., Dearborn, Mich.		120	Semet-Solvay	240,000	173,000
Gulf States Steel Co., Alabama City, Ala.		37	Semet-Solvay	864,000	622,000
Illinois Steel Co., Gary, Ind.		838	Koppers	237,000	165,900
Joliet, Ill.		280	1138 Koppers-Becker	1,259,250	881,475
			700 Koppers	4,400,000	3,080,000
Inland Steel Co., Indiana Harbor, Ind.		203	Koppers	1,500,000	1,050,000
International Harvester Co., South Chicago.		88	130 Koppers	890,000	623,000
Ironton By-Products Coke Co., Ironton, Ohio.		60	773 Koppers-Becker	620,900	434,650
Jones & Laughlin Steel Corporation, Pittsburgh.		300	Wilputte	578,000	404,600
Woodlawn, Pa.			Semet-Solvay	432,000	311,000
McKinney Steel Co., Cleveland.		122	240 Wilputte	438,000	306,600
Midland Coke & Iron Corporation, Granite City, Ill.		80	Koppers	1,600,000	1,120,000
Minnesota Steel Co., Duluth, Minn.		90	Koppers-Becker	1,100,000	770,000
National Tube Co., Lorain, Ohio.		203	Koppers	1,300,000	910,000
Benwood, W. Va.		120	Roberts	400,000	280,000
Otis Steel Co., Cleveland.		100	Koppers	600,000	420,000
Perry Iron Co., Erie, Pa.		37	Koppers	1,200,000	840,000
Pittsburgh Crucible Steel Co., Midland, Pa.		100	Semet-Solvay	270,000	189,000
Portsmouth By-Product Coke Co., Portsmouth, Ohio.		108	Semet-Solvay	475,000	356,250
Rainey-Wood Coke Co., Swedeland, Pa.		110	Wilputte	300,000	210,000
Republic Iron & Steel Co., Youngstown, Ohio.		204	Koppers	667,000	446,900
Thomas, Ala.		57	Semet-Solvay	770,000	559,000
Semet-Solvay Co., Ensley, Ala.		240	Koppers	800,000	560,000
Semet-Solvay Co., Buffalo.		60	143 Koppers	1,538,300	1,076,800
Sloss-Sheffield Coal & Iron Co., Birmingham.		120	61 Koppers-Becker	720,500	504,350
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.		434	Semet-Solvay	760,000	530,000
Toledo Furnace Co., Toledo, Ohio.		94	Semet-Solvay	474,500	355,875
Trumbull-Cliffs Furnace Co., Warren, Ohio.		47	Koppers	864,000	622,000
United Furnace Co., Canton, Ohio.		47	Koppers	2,560,000	1,792,000
Weirton Steel Co., Weirton, W. Va.		37	Koppers	560,000	392,000
Wheeling Steel Corporation, East Steubenville, W. Va.		145	Koppers-Becker	441,600	309,100
			Koppers	280,000	196,000
			Koppers-Becker	392,400	274,700
Woodward Iron Co., Woodward, Ala.		270	94 Koppers	610,000	427,000
Youngstown Sheet & Tube Co., Youngstown, Ohio.		390	751 Koppers-Becker	346,750	242,725
Indiana Harbor, Ind.		120	210 Koppers	1,235,600	864,900
Mayville, Wis.		108	60 Wilputte	330,000	231,000
Zenith Furnace Co., West Duluth, Minn.		65	Koppers	2,570,000	1,799,000
			Semet-Solvay	876,000	656,000
			United-Otto	450,000	315,000
			United-Otto	160,000	112,000
Total		9,242		58,255,200	41,114,225

COMMERCIAL OR GAS PLANTS

Alabama By-Product Coke Corp., Birmingham, Ala.	100	Koppers	669,000	468,300
Battle Creek Gas Co., Battle Creek, Mich.	11	Koppers-Becker	54,000	37,800
By-Products Coke Corporation, South Chicago.	230	120 Semet-Solvay	700,000	525,000
Camden Coke Co., Camden, N. J.	37	110 Koppers-Becker	1,000,000	700,000
Central Indiana Gas Co., Muncie, Ind.	22	Koppers	205,800	144,100
Chattanooga Gas & Coke Co., Alton Park, Tenn.	24	Klonne	40,000	28,000
Chicago By-Products Coke Co., Chicago.	105	Semet-Solvay	175,000	125,000
Citizens Gas Co., Langsdale, Ind.	41	Koppers	728,650	510,100
Citizens Gas Co., Prospect, Ind.	140	Semet-Solvay	299,000	225,000
*Coal Products Mfg. Co., Joliet, Ill.	53	100 United-Otto	277,000	193,700
Consolidated Gas Co., Hunts Point, N. Y.	174	40 Wilputte	290,000	203,000
Consumers Power Co., Zilwaukee, Mich.	19	35 Koppers	225,000	157,500
Jackson, Mich.	15	18 Wilputte	115,000	80,500
Diamond Alkali Co., Alkali, Ohio.	23	Koppers-Becker	638,750	447,100
Domestic Coke Corporation, Fairmont, W. Va.	60	Koppers-Becker	72,000	50,400
Empire Coke Co., Geneva, N. Y.	46	Koppers-Becker	50,000	35,000
Hudson Valley Coke & Products Corp., Troy, N. Y.	55	Koppers-Becker	204,400	143,100
Indiana Coke & Gas Co., Terre Haute, Ind.	60	Koppers	400,000	280,000
Laclede Gas Light Co., St. Louis.	64	Semet-Solvay	146,000	102,200
Linton Gas Co., Linton, Ind.	3	Foundation	400,000	280,000
Lynn Gas & Electric Co., Lynn, Mass.	11	30 Gas Machine	92,000	64,400
Michigan Alkali Co., Wyandotte, Mich.	54	30 Koppers	200,000	140,000
Milwaukee Coke & Gas Co., Milwaukee, Wis.	150	56 Koppers	320,000	224,000
Minnesota By-Products Coke Co., St. Paul, Minn.	65	8 Piette	40,000	28,000
New England Fuel & Trans. Co., Everett, Mass.	400	Gas Machine	15,000	10,500
North Shore Gas Co., Waukegan, Ill.	13	Koppers-Becker	54,000	37,800
Northern Indiana Gas & Elec. Co., Fort Wayne, Ind.	19	United-Otto	169,000	118,300
Philadelphia Suburban Gas & Elec. Co., Chester, Pa.	50	50 Semet-Solvay	275,000	192,500
Providence Gas Co., Sassafras Point, R. I.	40	100 Koppers	667,000	466,900
Rochester Gas & Elec. Corp., Rochester, N. Y.	137	Koppers	400,000	280,000
Seaboard By-Products Coke Co., Kearney, N. J.	165	United-Otto	650,000	455,000
Seattle Lighting Co., Seattle, Wash.	20	Semet-Solvay	55,000	38,500
Semet-Solvay Co., Detroit, Mich.	215	Koppers-Becker	94,300	65,000
Utica Gas & Electric Co., Utica, N. Y.	142	Roberts	182,500	127,750
		Koppers	240,000	168,000
		Koppers-Becker	164,000	114,800
		Koppers	1,200,000	840,000
		Klonne	24,000	15,800
		Semet-Solvay	1,343,000	1,009,000
		Koppers-Becker	208,500	146,000
Total	2,463		13,082,900	9,278,050
Grand Total	11,705		71,338,100	50,392,275

*Idle. †Building. ‡21 Building.

Iron and Steel Markets

Pending Automobile Sheet Purchases

One Maker a Large Buyer of Steel—A Test on Prices—Mill
Operations Continue at a High Rate—Blast
Furnaces Sell Coke Instead of Pig Iron

INTEREST in the steel trade is centering in the amount of automobile steel to be closed this month and at what prices. Efforts of large builders of cars to buy body sheets at \$2 to \$3 below today's market are met by the claims of sheet producers that the large automobile program for 1926 will take up all the output of full finished sheets.

One Detroit company has placed a large order for steel and for car parts, including forgings, the latter going to Cleveland district shops. Parts makers to whom some of the recent reduction in car prices is being passed on, point to the higher steel prices today than those on the steel they were taking in a year ago.

In all finished lines the call for steel booked before Jan. 1 is on a scale that keeps mill operations slightly above the December average. The continuance of this rate for several weeks is looked for, largely on specifications. Several leading companies are above an 85 per cent basis.

Pittsburgh mills have had some surprises in the size of the demand for tin plate from can manufacturers and in the increase in specifications for pipe. As oil production drops off further, the resumption of drilling is brought nearer.

In the Chicago district heavy specifying for rails and track accessories continues. Another feature is that farm machinery plants have a larger operation than in the fall. There is also a substantial increase in the demand for wire products due to the wide prevalence of mild weather.

Sheet mills are taking new business at a less rate than in the fourth quarter, and on black sheets nearly all markets show a \$2 concession.

Plates next to sheets show market variations. In Pittsburgh territory 1.85c. is more common, and at Cleveland some 1.80c. business has been done.

Production of sheets in December in independent plants again caught up with sales, but sales for the fourth quarter, 1,093,000 tons, were 8 per cent over production. Unfilled orders increased from less than 500,000 tons on Sept. 30 to 678,000 tons on Dec. 31.

The Burlington has ordered 1000 box cars and the Pacific Fruit Express may place orders this week for 5000 refrigerator cars. The Seaboard Air Line is expected to come into the market shortly for 3000 or 4000 freight cars.

In the large cities new construction shows no abatement. New York subway work accounts for 6800 tons and a City Hall in Los Angeles for 6600 tons of 29,000 tons of pending structural steel. A New York subway award calls for 4400 tons of steel. The tower building in Cleveland's terminal station calls for 20,000 tons and at Chicago

three projects now taking shape, will require 45,000 tons.

Bookings last year in fabricated steel made a new record by a large margin. Department of Commerce figures are 2,708,000 tons against 2,391,000 tons in 1924, the previous high.

The coke flurry due to Eastern demand for hard coal substitutes has kept up and crushed coke has brought \$11.50 to \$12 a ton at ovens. Metallurgical coke has sold up to \$9.50. The high coke prices are turning demand to soft coal rather than coke for heating.

The pig iron market shows but little life, though there are signs of early activity in pipe iron. At Philadelphia no less than 12,000 tons of foreign iron came in last week. Furnace stocks show some decrease. Production is somewhat reduced in the Central West due to the action of several furnaces in banking for a time while they resell their \$4 coke at a good profit.

Iron and steel exports from the United States in December dropped to 142,177 tons, from 171,134 tons in November. For the year 1925 the total was 1,762,952 tons, or fractionally below the 1924 total of 1,805,114 tons.

British exports of sheets last year set a high record of 713,084 tons. Of December exports of 40,581 tons of pig iron, the United States took 11,309 tons. Recent orders distributed among British rail mills include 44,000 tons for Argentina.

THE IRON AGE composite price for finished steel is lower, at 2.446c. per lb., against 2.453c. for the past six weeks. The pig iron composite stands, for the eighth week, at \$21.54 per ton. It was \$22.50 one year ago.

Pittsburgh

Tin Plate and Pipe Are Bright Spots— Automobile Makers Seek Concessions

PITTSBURGH, Jan. 19.—A surprisingly good demand for tin plate and a further quickening in the specifications for pipe stand out strongly in an otherwise quiet market in which shipping orders rather than new business are engaging steel-making capacity. For a time of year when the manufacture of containers usually is very light, makers are showing a remarkable willingness to take shipments against contracts, and cases of over-specification against monthly quotas are frequent enough to cause comment. The production of oil continues to dwindle and it is common talk that prices soon will advance in the Western fields. Such

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous
For Early Delivery

Pig Iron, Per Gross Ton:	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
No. 2X, Philadelphia...	\$24.26	\$24.26	\$24.26	\$25.01
No. 2, Valley furnace...	20.50	20.50	20.50	22.50
No. 2, Southern, Cin'ti...	25.69	25.69	25.69	24.95
No. 2, Birmingham, Ala...	22.00	22.00	22.00	20.00
No. 2 foundry, Ch'go furn...	23.00	23.00	23.00	24.00
Basic, del'd, eastern Pa...	23.00	23.00	23.00	24.25
Basic, Valley furnace...	20.00	20.00	20.00	22.00
Valley Bessemer del'd Pbg...	22.76	22.76	22.76	24.76
Malleable, Chicago furn...	23.00	23.00	23.00	24.00
Malleable, Valley...	20.50	20.50	20.50	22.50
Gray forge, Pittsburgh...	21.76	21.76	21.76	23.76
L. S. charcoal, Chicago...	29.04	29.04	29.04	29.04
Ferromanganese, furnace...	115.00	115.00	115.00	110.00

Rails, Billets, etc., Per Gross Ton:	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh...	35.00	35.00	35.00	37.00
O.-h. billets, Pittsburgh...	35.00	35.00	35.00	38.00
O.-h. sheet bars, Pbg...	36.00	36.00	36.00	40.00
Forging billets, base, Pbg...	40.00	40.00	40.00	42.50
O.-h. billets, Phila...	41.30	41.30	40.30	41.67
Wire rods, Pittsburgh...	45.00	45.00	45.00	48.00
Light rails at mill...	36.00	36.00	36.96	40.32
	Cents	Cents	Cents	Cents
Skelp, gr. steel, Pbg., lb...	1.90	1.90	1.90	2.00

Finished Iron and Steel,	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.22	2.22	2.22	2.28
Iron bars, Chicago...	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh...	2.00	2.00	2.00	2.10
Steel bars, Chicago...	2.10	2.10	2.10	2.10
Steel bars, New York...	2.34	2.34	2.34	2.44
Tank plates, Pittsburgh...	1.85	1.90	1.90	2.00
Tank plates, Chicago...	2.10	2.10	2.10	2.20
Tank plates, New York...	2.09	2.09	2.04	2.34
Beams, Pittsburgh...	1.90	1.90	1.90	2.10
Beams, Chicago...	2.10	2.10	2.10	2.20
Beams, New York...	2.24	2.24	2.24	2.34
Steel hoops, Pittsburgh...	2.50	2.50	2.50	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, Pbg...	3.35	3.35	3.35	3.60
Sheets, black, No. 28, Chi...	3.45	3.45	3.45	3.70
Sheets, galv., No. 28, Pbg...	4.60	4.60	4.60	4.75
Sheets, galv., No. 28, Chi...	4.70	4.70	4.70	4.85
Sheets, blue, 9 & 10, Pbg...	2.50	2.50	2.50	2.70
Sheets, blue, 9 & 10, Chi...	2.60	2.60	2.60	2.80
Wire nails, Pbg...	2.65	2.65	2.65	2.85
Wire nails, Chicago dist...	2.70	2.70	2.70	2.95
Plain wire, Pbg...	2.50	2.50	2.50	2.60
Plain wire, Chicago dist...	2.55	2.55	2.55	2.70
Barbed wire, galv., Pbg...	3.35	3.35	3.35	3.55
Barbed wire, galv., Chi...	3.40	3.40	3.40	3.65
Tin plate, 100 lb. box, Pbg...	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
Carwheels, Chicago...	\$18.00	\$18.00	\$18.00	\$21.00
Carwheels, Philadelphia...	18.00	18.50	18.50	19.50
Heavy steel scrap, Pbg...	18.50	19.00	19.00	21.50
Heavy steel scrap, Phila...	17.00	17.50	17.50	19.00
Heavy steel scrap, Ch'go...	15.25	15.25	15.25	19.50
No. 1 cast, Pittsburgh...	17.50	17.50	17.50	19.50
No. 1 cast, Philadelphia...	18.50	18.50	18.00	20.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	19.50
No. 1 RR. wrot. Phila...	18.50	18.50	18.50	21.00
No. 1 RR. wrot. Ch'go (net)	13.50	13.50	13.50	17.50

Coke, Connellsville,	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
Per Net Ton at Oven:				
Furnace coke, prompt...	\$9.00	\$6.00	\$5.00	\$3.85
Foundry coke, prompt...	9.00	6.50	5.50	4.75

Metals,	Jan. 19, 1926	Jan. 12, 1926	Dec. 22, 1925	Jan. 20, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	14.12 1/2	14.25	14.25	15.12 1/2
Electrolytic copper, refinery	13.75	13.87 1/2	13.87 1/2	14.75
Zinc, St. Louis...	8.32 1/2	8.70	8.60	7.80
Zinc, New York...	8.67 1/2	9.05	8.95	8.15
Lead, St. Louis...	9.00	9.00	9.00	10.35
Lead, New York...	9.25	9.25	9.25	10.60
Tin (Strait), New York...	61.75	62.75	62.50	57.00
Antimony (Asiatic), N. Y.	23.00	24.25	22.00	17.37 1/2

THE IRON AGE Composite Prices

Finished Steel Jan. 19, 1926, 2.446c. Per Lb.

One week ago.....	2.453c.
One month ago.....	2.453c.
One year ago.....	2.560c.
10-year pre-war average.....	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

High	Low
1925 2.560c., Jan. 6	2.396c., Aug. 18
1924 2.789c., Jan. 15	2.460c., Oct. 14
1923 2.824c., April 24	2.446c., Jan. 2

Pig Iron Jan. 19, 1926, \$21.54 Per Gross Ton

One week ago.....	\$21.54
One month ago.....	21.54
One year ago.....	22.50
10-year pre-war average.....	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

High	Low
1925 \$22.50, Jan. 13	\$18.96, July 7
1924 22.88, Feb. 26	19.21, Nov. 3
1923 30.86, March 20	20.77, Nov. 20

a development cannot fail to stimulate drilling operations and the demand for oil well pipe.

As a rule, January is a quiet month in the steel market and current dullness is not disturbing to manufacturers who, with an eye to price maintenance, seem more disposed to curtail production than to maintain a high gait at the expense of prices. There has not been much change in the rate of ingot output, but finishing mill operations as a whole are not quite as consistent as in December. Stocking of crude steel is not nearly so dangerous to the maintenance of prices as stocking of finished products.

Automobile manufacturers seem more interested in showing their new models than in buying steel against a program calling for about 5,000,000 cars, trucks and

tractors, as against 4,000,000 in 1925. Where negotiations have been started the effort of the automobile builders has been to see how much below current quotations they could place orders. One company, which expects to produce 65 per cent more cars this year than in 1925 has tried to buy body sheets \$2 to \$3 a ton under the present price. This move is being resisted by mills who feel that if the automobile industry's plans materialize, it is going to have considerable difficulty in lining up sources of supply. Increasing the output of full-finished sheets is not a simple matter, because of the difficulty in securing and training mill crews.

In a general way, steel prices are steady. Concessions are fairly common in black sheets, due to the

fact that some manufacturers need specifications to round out mill schedules, and it is quite clear now that on really desirable plate business 1.85c., Pittsburgh, is more representative of today's market than 1.90c.

The flurry in coke resulting from Eastern demands for hard coal substitutes continues and in the past few days crushed coke has been commanding from \$11.50 to \$12 per net ton at Connellsville ovens. Practically all production beyond that called for by contracts is being prepared for domestic use, and the market is almost bare of straight run-of-oven coke for blast furnace or foundry use. Such coke is not available at less than \$9 per net ton at ovens, and sales are reported as high as \$9.50. Present prices, however, are believed to represent the limit of the present upward movement. They mean such high costs to ultimate consumers that it is more than probable the next few weeks will see a shift from coke to soft coal to replace hard coal. The pig iron market has gone through another quiet week without developing any weakness. Steel works grades of scrap have yielded 50c. a ton since a week ago largely because dealers short of the market have stopped buying.

Pig Iron.—Steady demand for small tonnages of pig iron still is noted in a market which, however, only by a considerable stretch of imagination could be called at all active. There is no pressure to sell, because most producers have only what they will make in this quarter to offer, having pretty well wiped out the accumulation of a few months ago. Another deterrent to price cutting is that there is not much immediate sign of additions to present productive capacity. On the contrary, with crushed coke at high and remunerative prices, companies with coke-producing capacity may be encouraged to bank some of their furnaces and sell the coke. The Pittsburgh Crucible Steel Co. has banked a furnace, and the Claire furnace of the Reliance Coke & Furnace Co., Sharpville, Pa., also has been banked. The McKinney Steel Co., Cleveland, which was figuring on starting up one of its Josephine, Pa., stacks to take care of some local obligations, now seems to be in a position to supply the demands from Cleveland. The Altoona Iron Works has bought about 500 tons of No. 3, or gray forge iron at \$20, Valley furnace. An inquiry for 500 tons of low silicon, high phosphorus iron is reported from eastern Ohio. Most other inquiries and sales involve much smaller lots. An Allegheny Valley sheet maker is reported to be sounding out the market on a round tonnage of basic iron, but no sales have resulted. Sales of Bessemer iron are few and small.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$20.00
Bessemer	21.00
Gray forge	20.00
No. 2 foundry	20.50
No. 3 foundry	20.00
Malleable	20.50
Low phosphorus, copper free....	\$28.00 to 28.60

Ferroalloys.—Local representatives of ferromanganese makers have not much business to report, but the answer is probably to be found in the large sales in the East, reported in THE IRON AGE of last week. Those sales, made chiefly by a large Eastern steel company, appear to have covered the requirements of a number of large users in this and nearby districts, and only small early shipment sales are being made through local offices. The market still is said to be quotable at \$115, Atlantic seaboard, on both domestic and British material. Reference to offerings of Indian ferromanganese in these reports a week ago as being made by the agents of the Tata Iron & Steel Co. calls for amendment; the material was offered by importers, independently of the agents. Consumers are specifying fairly well against contracts for 50 per cent ferrosilicon and spiegeleisen, but new business is light. Prices are given on page 231.

Semi-Finished Steel.—The market is quieter in billets, slabs and sheet bars, since consumers no longer are apprehensive as to full supplies against their first quarter requirements. The sheet market is making a slow recovery from the inventory lull, and this is re-

sponsible for some slowing up of mill operations and of specifications against sheet bar contracts. Strip makers seem to have built up their reserves of billets and slabs to a comfortable point, and the fact that the automobile makers are showing, instead of making cars is telling on the demand for the finished products and the consumption of raw steel. There is no longer any talk of prices higher than the regular first quarter contract bases. On the contrary, consumers generally are so well supplied that finding buyers willing to take on more tonnage at those prices now would be difficult. Wire rods are moving steadily at \$45, base, Pittsburgh or Cleveland. Skelp still is easily found at 1.90c., and in the view of the instability of plates, contract tonnages probably are being placed at less. Prices are given on page 231.

Wire Products.—There is a good movement in plain wire against contracts and a fair one in wire products, but new business is quiet. Inventories are fairly well completed, but this is causing no swelling of orders or specifications, because the real consumptive demand still is 60 or 90 days off and jobbers are not disposed to build stocks at this time with the mills still making extremely prompt shipments and the railroads functioning smoothly in the face of weather conditions which, a few years ago, would have created some bad snarls. The price prospect is not such as to stimulate advance buying; jobbers have until the end of next month to enter specifications and manufacturing consumers are covered to the end of March at present prices. The mills in this territory are operating between 65 and 70 per cent of capacity. Prices are given on page 229.

Rails and Track Supplies.—The market in spikes and other rail accessories is notable more for its firmness than activity. There is a steady flow of orders, but more encouraging to manufacturers is the fact that they find it necessary to shade quotations much less frequently than was true a few months ago. Standard rail specifications are sufficient to give the local rail unit a good operation. Light rails sell steadily, and on billet rails makers are not now disposed to shade \$36, base per gross ton, even on the more attractive inquiries. Prices are given on page 229.

Tubular Goods.—Business is looking up in pipe, but has not yet assumed proportions that tax the productive capacity; indeed, one less unit is active in the Youngstown district than a week ago and current operations of pipe furnaces throughout the country are only about 65 per cent of capacity. The oil situation appears to be steadily improving, and with the approach of spring larger demands for oil well pipe are expected. Jobbers are specifying closer than formerly to actual requirements; the possibility of higher prices is regarded as slight, and the gain in productive capacity makes possible much faster deliveries than could be made a few years ago. The boiler tube situation still is discouraging to producers, particularly from the price angle. Discounts are given on page 229.

Sheets.—The automobile body builders have not yet begun to buy with any considerable freedom and the absence of this demand, which accounts for a very important part of the total sheet production, gives the market a very quiet appearance. Body builders seem to think that they should have a lower price than 4.50c., base (No. 22 gage), and are making strong efforts to secure concessions; makers are resisting because they believe the price low enough and also feel they rest on strong ground in the fact that if the 25 per cent increase in production planned by automobile makers eventuates, there will not be enough capacity to meet the increased steel requirements. Reports from the New York automobile show were favorable and a clear line on the outlook for business should be possible after the Chicago show, which is being held this week. The common finishes are moving well on old orders and specifications, but evidently not well enough to satisfy all makers, since concessions to secure business are, if anything, a little more frequent than recently. In a general way, the market is sustained by the fact that January rarely is an active month and that consumers

Prices of Finished Iron and Steel Products (Carload Lots)

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
F.o.b. Chicago.....	2.10c.
Del'd Philadelphia.....	2.32c. to 2.42c.
Del'd New York.....	2.34c. to 2.44c.
Del'd Cleveland.....	2.19c.
F.o.b. Birmingham.....	2.15c. to 2.25c.
C.i.f. Pacific ports.....	2.30c. to 2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
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Rail Steel

F.o.b. mill.....	1.80c. to 1.90c.
F.o.b. Chicago.....	2.00c. to 2.05c.

Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	3.00c.
Common iron, del'd Phila'phia.....	2.22c.
Common iron, del'd New York.....	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.10c.
F.o.b. Birmingham.....	2.05c. to 2.15c.
Del'd Cleveland.....	1.99c. to 2.09c.
Del'd Philadelphia.....	2.07c. to 2.12c.
Del'd New York.....	2.09c. to 2.14c.
C.i.f. Pacific ports.....	2.30c. to 2.35c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.90c. to 2.10c.
F.o.b. Chicago.....	2.10c.
F.o.b. Birmingham.....	2.05c. to 2.15c.
Del'd Cleveland.....	2.09c. to 2.19c.
Del'd Philadelphia.....	2.22c. to 2.32c.
Del'd New York.....	2.24c. to 2.34c.
C.i.f. Pacific ports.....	2.35c. to 2.40c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh.....	2.50c.
All gages, 6 in. and wider, P'gh.....	2.30c.
All gages, 6 in. and narrower, Chicago.....	2.60c.
All gages, wider than 6 in., Chicago.....	2.50c.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills.....	2.50c.
Bars, f.o.b. Chicago.....	2.50c.
Bars, Cleveland.....	2.55c.
Shafting, ground, f.o.b. mill.....	2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills.....	3.90c.
Strips, f.o.b. Cleveland mills.....	3.90c.
Strips, delivered Chicago.....	4.20c.
Strips, f.o.b. Worcester mills.....	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails.....	\$2.65
Galv'd nails, 1-in. and longer.....	4.65
Galv'd nails, shorter than 1 in.....	4.90
Galvanized staples.....	3.35
Polished staples.....	3.10
Cement coated nails, base, per count keg.....	1.85

Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.50
Annealed fence wire.....	2.65
Spring wire.....	3.50
Galv'd wire, No. 9.....	3.10
Barbed wire, galv'd.....	3.35
Barbed wire, painted.....	3.10

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh.....	2.50c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills.....	2.60c.
Nos. 9 and 10, del'd Phila'phia.....	2.82c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh.....	3.35c.
No. 28, f.o.b. Ch'go dist. mill.....	3.45c.
No. 28, del'd Phila'phia.....	3.67c.

Galvanized

No. 28, f.o.b. Pittsburgh.....	4.60c.
No. 28, f.o.b. Chicago dist. mill.....	4.70c.
No. 28, del'd Philadelphia.....	4.92c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	3.35c.
No. 28, f.o.b. Chicago dist. mill.....	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh.....	4.50c.
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Long Ternes

No. 28, 8-lb. coating, f.o.b. mill.....	4.85c.
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Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills.....	\$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.....	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per package, 20 x 28 in.)

8-lb. coating, 100	20-lb. coating I.C. \$16.20
lb. base.....	\$11.40
8-lb. coating I.C. 11.70	25-lb. coating I.C. 17.90
15-lb. coating I.C. 14.85	30-lb. coating I.C. 19.45
	40-lb. coating I.C. 21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers	Base Per 100 Lb.
2100* (1/2% Nickel, 0.10% to 0.20% Carbon)	\$3.25 to \$3.30
2300 (3 1/2% Nickel)	4.60 to 4.70
2500 (5% Nickel)	5.80 to 5.90
3100 (Nickel Chromium)	3.60 to 3.70
3200 (Nickel Chromium)	5.25 to 5.35
3300 (Nickel Chromium)	7.25 to 7.35
3400 (Nickel Chromium)	6.50 to 6.60
5100 (Chromium Steel)	3.60
5200* (Chromium Steel)	7.50 to 8.25
6100 (Chrom. Vanadium bars)	4.30 to 4.40
6100 (Chrom. Vanad. spring steel)	3.85
9250 (Silicon Manganese spring steel)	3.25 to 3.30
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.20 to 4.45
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.55 to 4.65
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.35 to 4.45
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.50 to 3.60
Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 1/2-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	\$36.00 to 37.00
Light (from rail steel), f.o.b. mill.....	34.00 to 35.00
Light (from billets), f.o.b. Ch'go mill.....	40.00 to 42.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, 1/2 in. and larger.....	\$2.80 to \$3.10
Spikes, 1/2 in. and smaller.....	3.00 to 3.50
Spikes, boat and barge.....	3.25
Track bolts, all sizes.....	4.00 to 4.50
Tie plates, steel.....	2.35 to 2.50
Angle bars.....	2.75

Welded Pipe

Base Discounts f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
1/8.....	45	19 1/2	1/4 to 3/8.....	11	+39		
1/4 to 3/8.....	51	25 1/2	1/2.....	22	2		
1/2.....	56	42 1/2	3/4.....	28	11		
3/4.....	60	48 1/2	1 to 1 1/2.....	30	13		
1 to 3.....	62	50 1/2					

Lap Weld

2.....	55	43 1/2	2.....	23	7
2 1/2 to 6.....	59	47 1/2	2 1/2.....	26	11
7 and 8.....	56	43 1/2	3 to 6.....	28	13
9 and 10.....	54	41 1/2	7 to 12.....	26	11
11 and 12.....	53	40 1/2			

Butt Weld, extra strong, plain ends

1/8.....	41	24 1/2	1/4 to 3/8.....	+19	+54
1/4 to 3/8.....	47	30 1/2	1/2.....	21	7
1/2.....	53	42 1/2	3/4.....	28	12
3/4.....	58	47 1/2	1 to 1 1/2.....	30	14
1 to 1 1/2.....	60	49 1/2			
2 to 3.....	61	50 1/2			

Lap Weld, extra strong, plain ends

2.....	53	42 1/2	2.....	23	9
2 1/2 to 4.....	57	46 1/2	2 1/2 to 4.....	29	15
4 1/2 to 6.....	56	45 1/2	4 1/2 to 6.....	28	14
7 to 8.....	52	39 1/2	7 to 8.....	21	7
9 and 10.....	45	32 1/2	9 to 12.....	16	2
11 and 12.....	44	31 1/2			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1 1/2 points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 5 1/2%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2 1/2 points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2½ in.....	27	1½ in.....	+18
2½ to 2¾ in.....	37	1¾ to 1⅞ in.....	+8
3 in.....	40	2 to 2¼ in.....	2
¾ to 3¾ in.....	42½	2½ to 3 in.....	7
4 to 13 in.....	46	3¼ to 4½ in.....	9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 to 3 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn	Hot Rolled
1 in.....	60
1 1/4 to 1 1/2 in.....	52
1 3/4 in.....	36
2 to 2 1/4 in.....	31
2 1/2 to 2 3/4 in.....	39
3 in.....	48
3 1/4 in.....	45
3 1/2 to 3 3/4 in.....	47
4 in.....	50
4 1/2, 5 and 6 in.....	45

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base.....	50 to 55
Carbon, 0.30% to 0.40%, base.....	45 to 50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

are building up requirements against the future by abstemious buying now. Prices are given on page 229.

Tin Plate.—Unusual activity for this time of year marks this product. The leading producer already is committed against production through to the middle of March, and the independents are doing almost as well because of the disposition of large contract buyers to overspecify their monthly quotas. It is hard to account for this condition unless it is a reflection of the confidence that exists with regard to the 1926 outlook for packing and the fact that the can companies have the money to finance good-sized inventories. There is a very strong market in stock items; these odd sizes are wanted and makers are having no trouble in getting from 25c. to 50c. a box advance over recent prices, because they have so little to sell. There was less oil can business last year than usual and on account of the exact size requirements in those cans, a good many seconds accrue. Betterment of mill and shearing practice also has cut down the supply of the items reaching the stock list.

Cold-Finished Steel Bars and Shafting.—Business is gradually expanding, but more emphasis is placed by makers on the firmness of prices than on the size of current sales and shipments. It is said that there is greater firmness to the market now than there has been in several years. If automobile makers carry out their plans, which call for a production of about 25 per cent more cars this year than in 1925, it will be a good year in cold-finished steel bars.

Plates.—Makers have had less success in maintaining prices of this product than those of most others. The railroad shops are reasonably busy, and there is a good deal of activity in river barges, but available plate-making capacity is large, especially as there is only about a 65 per cent engagement of pipe mill capacity. A price of 1.90c., base Pittsburgh, now is as high as even small tonnage will bring. On attractive lots the ruling market is 1.85c. Prices are given on page 229.

Hot-Rolled Flats.—Mills are getting good specifications, but new business is rather quiet and until the automobile industry gets started on its spring production, not much new buying is looked for. Prices are holding well. They are given on page 229.

Cold-Rolled Strips.—Specifications are larger, but new business seems to await heavier production by the automobile makers. Prices are firm.

Bolts, Nuts and Rivets.—There is a steady demand for bolts and nuts, but not much tendency on the part of consumers and jobbers to anticipate their requirements, because there is no sign of price changes and makers are in a position to make very prompt shipment against orders. Most rivet makers are firm at \$2.60, base, per 100 lb. for large rivets, but one or two fair-sized producers are not rigid at that quotation. Prices and discounts are given on page 231.

Steel and Iron Bars.—Sales of steel bars at more than 2c., base Pittsburgh, even in small tonnages, are becoming infrequent. At the same time, the mills are finding little or no resistance to a price of 2c. Specifications are more frequent than new orders, and with the consequent cutting into order books, delivery promises are shortening. There is a steady demand for iron bars at unchanged prices. Prices are given on page 229.

Structural Steel.—Last year's activity in fabricated steel is continuing, but so also is the keen competition for jobs. Larger demands for plain material are not stiffening prices, since the mills must recognize what their customers are able to do on the fabricated steel. Local shops have had a very good month to date, and there is immediately ahead the new Pittsburgh-Pennsylvania Hotel, plans for which now are being drawn, which will call for about 8000 tons of steel. Plain material prices are given on page 229.

Coke and Coal.—Coke for blast furnace or foundry use has risen sharply since a week ago, as a result of the broad and strong market for crushed coke to replace hard coal. With crushed coke selling at as high as \$12 a ton and being prepared at an extra cost of

only \$1 a ton, Connellsville operators are crushing practically all of the coke they are making above their contract requirements. This means that there is practically no spot furnace or foundry coke on the market, and while there is only a small demand, since most blast furnaces and foundries are covered by contract, the price of run-of-oven coke is determined by what producers can get for the domestic sizes. Lately run-of-oven coke, either 48-hr. or 72-hr., has been selling at \$9 to \$9.50 per net ton at ovens. Eastern buyers are beginning to balk at present prices for crushed coke, because they mean delivered prices of \$16 to \$17 and, adding handling charges of about \$4, make the cost to the ultimate user \$20 to \$21. It is believed that these prices will drive Eastern consumers to the use of soft coal as a substitute for anthracite. There has been some stiffening in the market for the domestic sizes of soft coal, but no strengthening in the run-of-mine coal, the supply of which still is very ample for the demand. Prices are given on page 231.

Old Material.—The market here has grown weaker in the past week and is at least 50c. a ton lower on the steel works grades. Consumers show very little interest in the market, and dealers who are short, not being pressed for shipments, are not doing much buying. The disposal of material coming on the market is very difficult and it has been necessary for holders to cut the price to find an outlet. Heavy melting steel cannot be sold at more than \$19, and a number of small lots have sold at as low as \$18.50. There has been a like easing off in the price of sheet scrap, and while other grades are holding at recent quotations, the market is more favorable to buyers than sellers. The Baltimore & Ohio is taking bids until noon, Jan. 25, on 14,960 gross tons of scrap.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel.....	\$18.50 to \$19.00
No. 1 cast, cupola size.....	17.50 to 18.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	20.50 to 21.50
Compressed sheet steel.....	17.50 to 18.00
Bundled sheets, sides and ends..	16.50 to 17.00
Railroad knuckles and couplers..	21.50 to 22.00
Railroad coil and leaf springs..	21.50 to 22.00
Low phosphorus blooms and billet ends	24.00 to 24.50
Low phosphorus plates and other material	23.00 to 23.50
Low phosphorus punchings.....	21.00 to 21.50
Railroad malleable	19.50 to 20.00
Steel car axles	23.00 to 23.50
Cast iron wheels	18.50 to 19.00
Rolled steel wheels	22.00 to 22.50
Machine shop turnings	14.75 to 15.25
Short shoveling turnings	15.00 to 15.50
Sheet bar crops	20.50 to 21.50
Heavy steel axle turnings	17.00 to 17.50
Short mixed borings and turnings	15.00 to 15.50
Heavy breakable cast	17.00 to 17.50
Stove plate	14.50 to 15.00
Cast iron borings	15.00 to 15.50
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	19.00 to 19.50

Atlanta Pipe Shop Bought

The plant and equipment of the Standard Cast Iron Pipe & Foundry Co., Atlanta, have just been sold to the United States Cast Iron Pipe & Foundry Co., Burlington, N. J., it has been announced by Joel Hurt, Jr., who represented the Atlanta company.

The Atlanta plant was previously owned and operated by the Pratt Engineering & Machine Co., and later by the Chemical Engineering & Foundry Co. It has been in operation for more than a score of years, first as a fertilizer factory, then for the manufacture of acid-handling and sugar-making machinery, and finally as a pipe foundry. Its principal product during the past year, under the control of the Standard Cast Iron Pipe & Foundry Co., has been pipe and fittings varying from 20 to 120 in. in diameter, and in a period of about one year it has manufactured and shipped approximately \$1,000,000 worth of products. The purchaser has not yet determined whether it will operate the plant or move the equipment to one of its other manufacturing centers.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over.....	\$35.00
Rolling, 2-in. and smaller.....	36.00
Forging, ordinary.....	40.00
Forging, guaranteed.....	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer.....	\$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger.....	\$35.00
6 in. x 2 in. and smaller.....	36.00

Skelp

	Per Lb.
Grooved.....	1.90c.
Sheared.....	1.90c.
Universal.....	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to 3/4-in.....	\$45.00
Common soft, coarser than 3/4-in.....	\$2.50 over base
Screw stock.....	\$5.00 per ton over base
Carbon 0.20% to 0.40%.....	3.00 per ton over base
Carbon 0.41% to 0.55%.....	5.00 per ton over base
Carbon 0.56% to 0.75%.....	7.50 per ton over base
Carbon over 0.75%.....	10.00 per ton over base
Acid.....	15.00 per ton over base

*Chicago mill base is \$46. Cleveland mill base, \$45.

Raw Materials

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$115.00
Foreign, 80%, Atlantic or Gulf port, duty paid.....	115.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$32.00 to \$34.00
Domestic, 16 to 19%.....	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%.....	\$85.00
75%.....	145.00

Bessemer Ferrosilicon

	Per Gross Ton	Per Gross Ton
F.o.b. Jackson County, Ohio, Furnace		
10%.....	\$36.00	12%.....\$40.00
11%.....	38.00	

Silvery Iron

	Per Gross Ton	Per Gross Ton
F.o.b. Jackson County, Ohio, Furnace		
6%.....	\$28.50	10%.....\$34.00
7%.....	29.50	11%.....36.00
8%.....	30.50	12%.....38.00
9%.....	32.00	

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd.....	\$1.15 to \$1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered.....	11.50c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.25 to \$4.00
Ferrocobaltitium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electrolytic, or blast-furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electrolytic, 24%, f.o.b. Anniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.50
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$17.00 to \$17.50
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2 1/2% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay

	Per 1000 f.o.b. Works
High Duty.....	
Moderate Duty.....	
Pennsylvania.....	\$43.00 to \$46.00 \$40.00 to \$43.00
Maryland.....	48.00 to 50.00 43.00 to 45.00
Ohio.....	43.00 to 46.00 40.00 to 43.00
Kentucky.....	43.00 to 45.00 40.00 to 43.00
Illinois.....	43.00 to 45.00 40.00 to 43.00
Missouri.....	40.00 to 43.00 35.00 to 38.00
Ground fire clay, per ton.....	6.50 to 7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania.....	\$46.00
Chicago.....	49.00
Birmingham.....	54.00
Silica clay, per ton.....	\$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.....	40.00

Chrome Brick

	Per Net Ton
Standard size.....	\$48.00

Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads.....	60 and 10
Machine bolts, all sizes, cut threads.....	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads.....	50, 10 and 10
Carriage bolts, cut threads, all sizes.....	50 and 10
Eagle carriage bolts.....	65 and 10
Lag bolts.....	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads.....	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, 3/4 x 4 in., 45, 10 and 5	
Larger and longer sizes.....	45, 10 and 5
Bolt ends with hot-pressed nuts.....	50, 10 and 10
Bolt ends with cold-pressed nuts.....	45, 10 and 5
Hot-pressed nuts, blank and tapped, square, 4c. off list	
Hot-pressed nuts, blank or tapped, hexagons, 4.40c. off list	
C.p.c. and t. square or hex. nuts, blank or tapped.....	4.10c. off list
Washers*.....	6.50c. to 6.25c. off list

*F.o.b. Chicago and Pittsburgh.
The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot-pressed and cold-pressed nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
3/8 in. and smaller, U. S. S.....	80, 10 and 5
1/2 in. and larger, U. S. S.....	75, 10 and 5
Small sizes, S. A. E.....	80, 10, 10 and 5
S. A. E., 3/4 in. and larger.....	75, 10, 10 and 5
Stove bolts in packages.....	80, 10 and 5
Stove bolts in bulk.....	80, 10, 5 and 2 1/2
Tire bolts.....	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per 100 Net	Per 100 Net
(To jobbers and consumers in large quantities)		
Per 100 Net	S.A.E. U.S.S.	3/4-in... \$2.35 \$2.40
1/4-in....	\$0.44 \$0.44	1-in... 3.60 3.60
3/8-in....	0.515 0.515	1 1/4-in... 5.65 5.80
1/2-in....	0.62 0.66	1 1/2-in... 8.90 8.90
3/4-in....	0.79 0.90	1 3/4-in... 12.60 13.10
1-in....	1.01 1.05	2-in... 18.35 18.35
1 1/4-in....	1.38 1.42	2 1/2-in... 21.00 21.00
1 1/2-in....	1.70 1.73	

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh.....	\$2.60
F.o.b. Cleveland.....	2.70
F.o.b. Chicago.....	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh.....	70 and 10
F.o.b. Cleveland.....	70 and 10
F.o.b. Chicago.....	70 and 10 to 70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws.....	80 and 10
Milled standard set screws, case hardened.....	80
Milled headless set screws, cut thread.....	80
Upset hex. head cap screws, U. S. S. thread, 80, 10 and 10	
Upset hex. cap screws, S. A. E. thread, 80 and 10	
Upset set screws.....	80, 10 and 10 to 80, 10 and 5
Milled studs.....	70 and 5

Chicago

Steel Specifications Still Heavy—New Mode of Quoting Cement Coated Nails

CHICAGO, Jan. 19.—Both specifications and new buying of finished steel are heavier than during the previous week and are running slightly above the average maintained throughout December. The present volume of business is also in greater volume than during the corresponding period of last year. Specifications for rails and track fastenings are unusually heavy, and mills are being pressed for deliveries. Western producers booked 9000 tons of standard rails and expect a like tonnage to be placed soon by the Chicago & Alton. Farm implement manufacturers' schedules are heavier than at any time during the fall. The rapidly increasing number of automobiles in service is pressing forward the construction of serviceable roads. This is having its effect on the steel market, not only in demand for concrete bars but in orders placed for materials which go into the construction of road-building machinery. Automobile and parts manufacturers are looking forward to a substantial spring trade, and a local automobile maker is planning a schedule of 12,000 cars in March.

Mill specifications for structural materials are liberal. Fabricated steel bids are showing a tendency to stiffen, as shops become more satisfactorily booked and stocks at the shops are reduced to the point where contractors can no longer insist upon prompt deliveries. From 40,000 to 50,000 tons will be required for three large projects in Chicago which are rapidly approaching the figuring stage.

Railroad car orders for the week total 1300 and several sizable inquiries are before the trade.

Steel output is unchanged, the leading interest remaining at 88 per cent of ingot capacity and the fore-most independent at between 80 and 85 per cent.

Ferroalloys.—Spiegeleisen is in greater demand, and several fair tonnages were placed during the week. One large user entered the market for a good-sized tonnage and found it necessary to take an off grade in order to get the tonnage required. The price quoted was on the basis of \$34, Hazard, Pa., or \$41.76, delivered. Very little Jackson County material is entering this market, and sellers report that it is difficult to get the 18 to 22 per cent grade at this time. A Chicago user took 250 tons of 16 to 19 per cent spiegeleisen for second quarter delivery at a reported price of \$33, base furnace. Ferromanganese and 50 per cent ferrosilicon are quiet with prices unchanged.

We quote 80 per cent ferromanganese, \$122.56, delivered Chicago; 50 per cent ferrosilicon, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$41.76, delivered Chicago.

Pig Iron.—Shipments are moving forward with very little interruption and makers find that the general average so far in January is somewhat ahead of that for December. This is accounted for, in part, by the fact that the last two weeks in December were not as heavy in deliveries as the first half of the month. Spot buying is not particularly active, although here and there a user finds that he must enter the market to fill out his requirements for the remainder of the quarter. Some buying of second quarter iron is reported by users who have well developed programs. Northern No. 2 foundry, malleable and high phosphorus are unchanged at \$23, local furnace. A Western railroad foundry is inquiring for 3500 tons of Northern iron and malleable. Wisconsin malleable foundries are reported busy and one of them is inquiring for 1600 tons of iron for delivery during the first and second quarters. A few scattered sales of charcoal iron are reported. Southern iron is quiet and unchanged in price. A few spot sales of low phosphorus are reported at the ruling market quotation. Sales of 14 to 16 per cent ferrosilicon are now being made at \$44, base furnace, or \$48.79, delivered. Merchant furnace operations throughout the district are unchanged and production is said to very closely approximate shipments. The Thomas furnace, Milwau-

kee, has been producing low phosphorus iron for the past two weeks, and at the Indiana Harbor plant of the Youngstown Sheet & Tube Co. one furnace is now on Bessemer iron and the other on basic.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	\$23.00
Northern No. 1 foundry, sil. 2.25 to 2.75	23.50
Malleable, not over 2.25 sil.	23.00
High phosphorus	23.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	27.01
Southern No. 2 (barge and rail) ..	26.18
Low phos., sil. 1 to 2 per cent, copper free	\$31.20 to 31.70
Silvery, sil. 8 per cent	35.29
Ferrosilicon, 14 to 16 per cent ..	48.79

Bars.—Specifications for soft steel bars are still liberal and sales are reported as being equal to, or slightly better than, the average maintained during December. Automobile manufacturers are again feeling their way into the market. Makers of rail steel bars find demand steady and one mill continues to operate on double turn. Specifications are good and new business is being taken within a range of 2c. to 2.05c., Chicago. Sales of bar iron are not large in the aggregate, and demand is not showing any tendency to increase. Specifications from farm implement manufacturers are still liberal and some business is now emanating from builders of road-making machinery.

Mill prices are: Mild steel bars, 2.10c., Chicago; common bar iron, 2c., Chicago; rail steel bars, 2c. to 2.05c., Chicago.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c., Chicago warehouse.

Rails and Track Supplies.—Specifications against recent contracts for rails and track fastenings have been heavy. The Wabash has placed 8000 kegs of spikes and 4000 kegs of track bolts with a Chicago district mill. The Chicago & Eastern Illinois has bought 5000 tons of standard rails locally and the Chicago Great Western is said to have contracted for 2000 tons of rails. Although the Chicago & Alton has not as yet made formal inquiry, its rail requirements are estimated at 9000 tons. Inquiries which are still open include a large tonnage of rails for the Southern Pacific and the requirements of the Soo Line. Light rails are not in active demand and bookings for the week totaled only 600 tons.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, \$40 to \$42 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c., mill; track bolts with square nuts, 3.90c. to 4c., mill; steel tie plates, 2.35c. f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of Chicago warehouse at 3.55c., base, and track bolts, 4.55c., base.

Wire Products.—Mild winter weather throughout almost the entire country, and especially in the Mississippi Valley, has increased demand. Jobbers' stocks are reported low. Specifications from the manufacturing trade are liberal, and it is said that shipments are going directly into production. Mill operations are unchanged at slightly over the 70 per cent mark. Makers of coated nails have decided to discontinue the practice of selling on the basis of the count keg and hereafter will quote per 100-lb. keg. Extras are now being figured which will put standard and cement coated nails on the same basis. Prices, which are holding steady and are unchanged, are shown on page 229.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, \$3.30 per 100 lb.; common wire nails, \$3.05 per keg; cement-coated nails, \$2.05 to \$2.20 per count keg.

Structural Material.—Mills report both specifications and new buying of plain material well maintained. Awards to fabricators, however, are light, although encouragement is found in a number of heavy tonnage projects which are approaching the figuring stage. One of these is the Agricultural Mart, which is expected to require 20,000 tons of plates, shapes and

bars. Another large project which is assuming definite form is the new Board of Trade Building, which will call for about 18,000 tons. With many structural shops committed four to five months and average bookings carrying well into the third month, fabricators find there is a tendency for bids to stiffen. Since mill deliveries of plain material are fairly well extended and fabricators' stocks are uniformly reported as being low, it is becoming more and more difficult for contractors to specify short deliveries on fabricated material.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Sheets.—Local mills continue to operate close to 100 per cent of capacity in order to meet specifications against obligations. New business is slow in coming in, and is considerably smaller in volume than bookings during the fourth quarter. Prices are unchanged.

Chicago delivered prices from mill are 3.50c. for No. 28 black, 2.65c. for No. 10 blue annealed and 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4.10c. base for black, and 5.25c. base for galvanized.

Cast Iron Pipe.—The Chicago market is comparatively quiet and prices are weaker, ranging from \$40 to \$42, base Birmingham, for 6-in. and larger sizes. With a freight rate of \$8.20, the Chicago delivered prices become \$48.20 to \$50.20. These prices are said to apply for pipe to be delivered during January, February and March. Lebanon, Ill., has placed 500 tons of 4, 6 and 8-in. Class B pipe with the National Cast Iron Pipe Co. Sandusky, Ohio, is inquiring for 220 tons of 6-in. and 15 tons of 8-in., all Class B pipe. Lima, Ohio, will take tenders on 600 tons of 4, 6 and 10-in. Class B. Downers Grove, Ill., has awarded the general contract for 1600 tons to the T. H. Iglehart Co., and Kenosha, Wis., will open bids on its recent inquiry, Friday, Jan. 22. Public utilities have been actively in the market during the past few weeks.

Detroit has closed on 4500 tons of 36-in. water pipe; 2000 tons to the United States Cast Iron Pipe & Foundry Co. and 2500 tons to B. Nicoll & Co., representing the Pont-a-Mousson works.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., \$54.20; 6-in. and over, \$48.20 to \$50.20; Class A and gas pipe, \$4 extra.

Bolts, Nuts and Rivets.—Users are again placing their requirements on a scale comparable with that of the pre-inventory period. Makers' operations are unchanged at slightly over 75 per cent. Prices are steady and unchanged except for small rivets, which are now quoted at 70 and 10 to 70 and 5 off list, f.o.b. Chicago. Jobbers' quotations on rivets are unchanged.

Jobbers quote structural rivets, 3.50c. per lb.; boiler rivets, 3.70c. per lb.; machine bolts up to 3/4 x 4 in., 50 and 5 per cent off; larger sizes, 50 and 5 off; carriage bolts up to 3/4 x 4, 47 1/2 off; larger sizes, 47 1/2 off; hot-pressed nuts, square, tapped or blank, \$3.25 off; hot-pressed nuts, hexagon, tapped or blank, \$3.75 off; coach or lag screws, 55 and 5 per cent off.

Sheet Bars.—This commodity is in good demand and is quoted at \$36 per gross ton, Chicago.

Plates.—The outstanding inquiry of the week is 5000 tons of plates for pipe construction in the West. Tankage pending is not heavy, probably not totaling more than 6000 tons. Actual car buying is light, but attention is centered on a conference to be held during the week in San Francisco to decide the fate of the inquiry for 5041 refrigerator cars by the Pacific Fruit Express. Car builders expect the Illinois Central to enter the market for cars this week. Demand for plates is improving. In both specifications and new buying January so far is substantially ahead of December as well as the corresponding period of last year.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Reinforcing Bars.—This market is very quiet except for the opening of bids on a fair number of good-sized projects. Contracts placed for the week were small, both in tonnage and number. Dealers are marking

time and do not expect spring construction activity to make itself felt before Feb. 15. Several new hotel projects are now in the making, and it is reported that Northwestern University will soon start construction on the Gary Library and the Mayer Law School buildings on its new campus in this city. The price of 2.60c. per lb., Chicago warehouse, for billet steel reinforcing bars, is steady. Contracts recently closed and projects pending are shown on page 241.

Fluorspar.—This commodity is more active and is firm at \$17.50, f.o.b. mines. Stocks in the hands of producers are reported as low and deliveries in some instances are deferred because of this fact.

Coke.—The market is active and shipments of the foundry grade are moving in good volume at \$10.50, ovens, or \$11, delivered in Chicago switching district.

Old Material.—The market is still inclined toward the weaker side, although prices in general are unchanged. Trading is dull and listless, with users remaining out of the market and dealers indisposed to sell because they look for a stronger market in the near future. Open weather, the free movement of shipments, and a good supply of practically all commodities are contributing factors to the present situation. Railroad lists also play a part. In some cases, lists are wholly, or in part, under load at the time of sale, and railroads which in times past have made delivery in from 45 to 60 days are now putting the material on track within a few days after contracts are closed. Several fair-sized tonnages of specialties were placed quietly during the week. Heavy melting steel is dull and dealers are reported as quoting \$15.25 per gross ton. Advertised railroad lists include 16,000 tons offered by the Chicago & Eastern Illinois, 9000 tons by the Baltimore & Ohio and 5000 tons by the Rock Island.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton	
Iron rails	\$18.00 to \$18.50
Cast iron car wheels	18.00 to 18.50
Relaying rails, 56 lb. to 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	18.50 to 19.00
Railroad tires, charging box size	19.00 to 19.50
Railroad leaf springs, cut apart	19.00 to 19.50
Rails for rolling	17.50 to 18.00
Steel rails, less than 3 ft.	18.50 to 19.00
Heavy melting steel	15.25 to 15.50
Frogs, switches and guards, cut apart	17.00 to 17.50
Shoveling steel	15.25 to 15.50
Drop forge flashings	11.50 to 12.00
Hydraulic compressed sheets	13.50 to 14.00
Axle turnings	15.00 to 15.50
Steel angle bars	18.00 to 18.50
Steel knuckles and couplers	18.00 to 18.50
Coil springs	19.00 to 19.50
Low phos. punchings	17.25 to 17.75
Machine shop turnings	9.25 to 9.75
Cast borings	13.50 to 13.75
Short shoveling turnings	13.25 to 13.75
Railroad malleable	18.00 to 18.50
Agricultural malleable	16.50 to 17.00

Per Net Ton	
Iron angle and splice bars	16.50 to 17.00
Iron arch bars and transoms	21.00 to 21.50
Iron car axles	26.00 to 26.50
Steel car axles	17.50 to 18.00
No. 1 busheling	12.00 to 12.50
No. 2 busheling	9.25 to 9.75
Pipes and flues	11.00 to 11.50
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	13.50 to 14.00
No. 1 machinery cast	17.00 to 17.50
No. 1 railroad cast	16.25 to 16.75
No. 1 agricultural cast	16.25 to 16.75
Locomotive tires, smooth	16.50 to 17.00
Stove plate	14.75 to 15.25
Grate bars	14.00 to 14.50
Brake shoes	13.00 to 13.50

To prevent strikes, lockouts or other disturbances from labor circles in Chicago, the Chicago chapter of the American Institute of Architects and the Illinois Society of Architects have joined forces with contractors, builders and other engaged in the promotion of building. The action of the architects was taken to indicate their position in the event that certain building trades were preparing to enforce a clause in new trade agreements permitting sympathetic and jurisdictional strikes and preventing all nonunion and some non-Chicago union men from working in Chicago.

San Francisco

Local Importer May Stock Foreign Steel —Intercoastal Freight Rates Weaken

SAN FRANCISCO, Jan. 15 (By Air Mail).—A large Pacific Coast importer is understood to be considering the advisability of carrying stocks of foreign steel on a jobbing basis, in San Francisco and Los Angeles warehouses. As an experiment in this direction 1000 tons of foreign reinforcing bars will be carried here to fill local out-of-stock requirements. Belgian reinforcing bars are being quoted at 1.75c., base, c.i.f. Coast ports, duty paid, in 60-ft. lengths, and at 1.65c. in less than 60-ft. lengths.

Developments during the past week indicate that some of the intercoastal steamship companies are likely to make further freight rate concessions on steel shipments from Atlantic Coast ports. If such action is taken by the intercoastal carriers, some of the Eastern mill representatives may quote plates at 2.25c., c.i.f. Coast ports. However, the majority of the Eastern mills continue to ask 2.30c.

Of interest to the local steel trade during the coming week will be the second annual convention of the Iron, Steel and Allied Industries of California at Del Monte. Eastern mills, as well as Pacific Coast companies, will be represented at the meeting.

Pig Iron.—Buyers seem content to wait for further developments in the price situation before entering the market for small lots. Practically all of the larger buyers have covered their requirements for the first quarter, and as a result, the pig iron market is more or less dormant.

*Utah basic	\$27.00 to \$28.00
*Utah foundry, sil. 2.75 to 3.25 ..	27.00 to 28.00
**English foundry, sil. 2.75 to 3.25 ..	25.00 to 26.00
**Belgium foundry, sil. 2.75 to 3.25 ..	24.00
*Dutch foundry, sil. 2.75 to 3.25 ..	24.00
**Indian foundry, sil. 2.75 to 3.25 ..	24.00 to 25.00
*German foundry, sil. 2.75 to 3.25 ..	24.00
**Chinese foundry, sil. 3 to 3.50 ..	25.50

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings in fabricated steel reported during the week total 700 tons. The only fresh inquiry of importance is 3000 tons for an office building in San Francisco. The McClintic-Marshall Co. of California is low bidder on 6640 tons for the Los Angeles City Hall. Eastern mill quotations are firm at 2.35c. to 2.40c., c.i.f. Coast ports.

Plates.—Lettings total 905 tons. No fresh inquiries of over 100 tons have come into the market. The Pacific Coast Engineering Co., Oakland, Cal., has been awarded a contract for 125 tons of dredge pipe by an unnamed interest in Florida, and 550 tons by the City of New Orleans. The Southern Pacific Co. has placed 230 tons of plates with an Eastern producer. While most of the Eastern mills are asking 2.30c., c.i.f. Coast ports, developments during the week in connection with reports of lower intercoastal freight rates, have led to the belief that 2.25c. may be done.

Bars.—While a number of good-sized reinforcing bar jobs are pending, only one calling for over 100 tons is known to have been placed during the week—250 tons for the Vantage Ferry Bridge, Wash., which was taken by the United States Steel Products Co. Current quotations are nominal at 2.75c. to 2.80c., base per lb. on less-than-carload lots, and about 2.50c. on larger lots.

Warehouse Business.—Orders are fairly numerous, but individually small. Prices are unchanged.

Local warehouse prices, per 100 lb., are as follows: Merchant bars, \$3.30 base; merchant bars, $\frac{3}{4}$ in. and under, rounds, squares and flats, \$3.80 base; soft steel bands, \$4.15 base; angles, $\frac{3}{4}$ in. and larger x $1\frac{1}{4}$ in. to $2\frac{1}{4}$ in., incl., \$3.30 base; channels and tees, $\frac{3}{4}$ in. to $2\frac{1}{4}$ in., incl., \$3.90 base; angles, beams and channels, 3 in. and larger, \$3.30 base; tees, 3 in. and larger, \$3.30 base; universal mill plates, $\frac{1}{4}$ in. and heavier, stock lengths, \$3.30 base; spring steel, $\frac{1}{4}$ in. and thicker, \$6.30 base; wire nails, \$3.50 base; cement coated nails, \$3 base; No. 10 blue annealed sheets, \$3.75; No. 28 galvanized sheets, \$6; No. 28 black sheets, \$4.75.

Cast Iron Pipe.—The city of Aberdeen, Cal., has awarded 1500 tons of water pipe to B. Nicoll & Co.,

representing the Pont-a-Mousson works. The city of Santa Barbara, Cal., has awarded 146 tons of 4, 6, 8 and 12-in. Class B pipe to the United States Cast Iron Pipe & Foundry Co. Several other jobs are pending and are expected to be closed during the next two weeks. Quotations are unchanged at \$50 base, water shipment, San Francisco.

Rails and Track Supplies.—The Pacific Fruit Express Co., San Francisco, has opened bids on 1750 tons of axles in connection with bids opened during the past week on 5000 refrigerator cars. The Southern Pacific Co. has placed about 100 tons of rivets with an unnamed Eastern mill.

Coke.—No buying of any consequence is being done, as most of the local users have covered their requirements for the better part of the first quarter. Importers' prices are unchanged.

English beehive, \$15 to \$16 per ton at incoming dock, and English by-product, \$12 to \$14; German by-product, \$11.50 to \$12.

St. Louis

Heavy Eastern Demand for Coke—Pig Iron, Steel and Scrap Quiet

ST. LOUIS, Jan. 19.—The pig iron market was never quite so dull as during the last few weeks. No sales of consequence were made last week, and no inquiries were received. Melters seem to be well taken care of in their requirements for first quarter. However, the melt has been heavy, and it is expected that there will be a strong buying movement as soon as books are opened for second quarter, which probably will be about Feb. 15. The market is steady at unchanged prices.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25 ..	\$25.66
Northern malleable, sil. 1.75 to 2.25 ..	25.66
Basic	25.66
Southern fdy., sil. 1.75 to 2.25 ..	\$26.42 to 27.92
Granite City iron, sil. 1.75 to 2.25 ..	24.31 to 24.81

Old Material.—The market is weaker, prices being from 25 to 75c. lower because of the lack of interest by consumers. Nor is it expected that there will be any buying of consequence until some time in February. Railroad lists include: St. Louis-San Francisco, 1100 tons; Rock Island, 4700 tons; Texas & Pacific, 1100 tons, and Missouri Pacific, 400 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton

Iron rails	\$14.50 to \$15.00
Rails for rolling	17.50 to 18.00
Steel rails less than 3 ft.	18.50 to 19.00
Relaying rails, 60 lb. and under ..	24.00 to 25.00
Relaying rails, 70 lb. and over ..	30.00 to 31.00
Cast iron car wheels	18.00 to 18.50
Heavy melting steel	15.00 to 15.50
Heavy shoveling steel	15.00 to 15.50
Frogs, switches and guards cut apart	17.25 to 17.75
Railroad springs	19.00 to 19.50
Heavy axles and tire turnings ..	12.25 to 12.75
No. 1 locomotive tires	16.75 to 17.25

Per Net Ton

Steel angle bars	15.00 to 15.50
Steel car axles	18.00 to 18.50
Iron car axles	23.00 to 23.50
Wrought iron bars and transoms ..	19.50 to 20.00
No. 1 railroad wrought	13.00 to 13.50
No. 2 railroad wrought	13.25 to 13.75
Cast iron borings	10.75 to 11.25
No. 1 bushelling	11.50 to 12.00
No. 1 railroad cast	15.00 to 15.50
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	14.00 to 14.50
Machine shop turnings	7.75 to 8.25
Bundled sheets	8.50 to 9.00

Coke.—There is a boom demand for coke, more especially for domestic grades. This is due to the cold weather and the anthracite strike. The Eastern markets have been drawing heavily on by-product coke

made in this district. The market is strong, with prices quotably unchanged, but a premium is being paid for "car numbers" for quick delivery.

Finished Iron and Steel.—There is no buying to speak of in these lines. Warehouses and consumers either have previously supplied their wants for the next month or have not yet completed the taking of inventories. There is no activity in structural steel, fabricators report.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.60c.; galvanized sheets, No. 28, 5.70c.; black corrugated sheets, 4.65c.; galvanized, 5.75c.; cold-rolled rounds, shafting and screw stock, 3.75c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, $\frac{3}{8}$ -in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 and 5 per cent; lag screws, 55 $\frac{1}{2}$ per cent; hot-pressed nuts, square, \$3.25 off list; hexagon, blank or tapped, \$3.75 off list.

Boston

Eastern Pennsylvania Pig Iron Declines —Large Cast Pipe Sales

BOSTON, Jan. 19.—Pig iron is selling more freely in New England, but the market is by no means active. Sales the past week approximated 4000 tons, the largest reported being 900 tons of No. 2 X and No. 1 X foundry. One 500-ton lot of No. 2 X and No. 1 X and several of 250 tons figured in the transactions, whereas a week ago a 100-ton lot was a large order. Purchases are mostly for first quarter delivery. While there is some second quarter business, it is without special significance, since it does not represent a real buying movement. A large percentage of current buying is by foundries, which find stocks insufficient for first quarter. Other foundries are asking furnaces to defer shipments; consequently some first quarter deliveries will run into the second quarter. The New England melt of iron collectively, however, is increasing. Reports that eastern Pennsylvania iron is available at 50c. a ton concessions have been substantiated. Buffalo iron for first quarter is unchanged at \$22, base furnace, but for second quarter No. 2 plain is \$21, furnace; No. 2 X, \$21.50, and No. 1 X, \$22.50. It is believed the Interstate Commerce Commission will take action this week on a proposed reduction of \$1 a ton on freight rates from a western Pennsylvania furnace into New England, thereby bringing rates into line with those from other western Pennsylvania furnaces as well as Buffalo. German foundry iron with 2.50 to 3.00 per cent silicon is available at \$22.50, on dock Providence, R. I., duty paid, and other Continental foundry can be bought at \$21.50 on dock here, duty paid, and possibly less. Quotations on Dutch and Indian irons are somewhat higher.

We quote delivered prices on the basis of the latest sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25.....	\$26.15 to \$26.65
East. Penn., sil. 2.25 to 2.75.....	26.65 to 27.15
Buffalo, sil. 1.75 to 2.25.....	\$25.91 to 26.91
Buffalo, sil. 2.25 to 2.75.....	26.41 to 27.41
Virginia, sil. 1.75 to 2.25.....	29.92
Virginia, sil. 2.25 to 2.75.....	30.42
Alabama, sil. 1.75 to 2.25.....	31.60 to 32.60
Alabama, sil. 2.25 to 2.75.....	32.10 to 33.10

Cast Iron Pipe.—All kinds of pipe are moving more freely. Competition among foundries is keen and price concessions of 16-in. and larger pipe are obtainable. There is more stability to prices on smaller pipe. Competition from French pipe makers is dwindling because of their inability to meet specifications. The Boston Consolidated Gas Co. has placed its 1926 requirements, amounting to 4000 tons, with the Warren Foundry & Pipe Co. Wayland, Mass., has placed approximately 2000 tons of pipe for a new water works system with the same company. Portland, Me., has placed a large tonnage of 20-in. pipe with the Warren Foundry & Pipe Co. and 150 tons of 16-in. pipe with the United States Cast Iron Pipe & Foundry Co. The Donaldson Iron Co. secured an order for 444 tons of 6-in. to 24-in. pipe from Fitchburg, Mass. Other large ton-

nages will be placed in New England within the near future, but details are withheld. Bids close Tuesday, Jan. 19, on 250 tons of 6-in. to 12-in. pipe for Malden, Mass. Prices quoted openly on domestic pipe follow: 4-in., \$60.10 a ton, delivered common Boston freight rate points; 6-in. to 16-in., \$56.10; 20-in. and larger, \$55.10. The usual extra of \$5 a ton is asked on Class A and gas pipe.

Coke.—Since the collapse of the anthracite coal strike negotiations, there has been an appreciable strengthening in the prices of foreign coke and American fuel made outside New England. The New England Coal & Coke Co. and the Providence Gas Co., however, are holding to former prices, with by-product foundry coke unchanged at \$13 a ton, delivered within a \$3.10 freight rate zone. Demands for foundry coke are increasing, but domestic fuel is less active owing to warmer weather. Consequently, New England ovens are still able to make prompt shipments on foundry contract specifications. Local inquiry for Connellsville foundry coke discloses most ovens sold for January. One company, with a freight rate of \$5.54 into New England, quotes \$8 a ton on cars, or \$13.54, delivered, which is 54c. higher than the delivered price on New England coke. No Connellsville ovens will quote on crushed coke, because recent rejections made this class of business in New England unprofitable. Prices on imported cokes are higher than those on domestic, and demand for foreign fuel is naturally less urgent.

Old Material.—No new features have developed in the market. Brokers are picking up a car of miscellaneous material here and there, at prices ruling a week ago, to apply to some old unfilled order. No new business of consequence has developed, but the trade looks for a resumption of buying by both eastern Pennsylvania and Pittsburgh mills at an early date. It is believed New England mills are fairly well covered through February and possibly into March. Owing to the gradual increase in New England industrial activities, supplies of turnings, borings, skeleton and similar material are accumulating at plants.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	\$20.00 to \$20.50
No. 1 machinery cast	19.50 to 20.00
No. 2 machinery cast	15.50 to 16.50
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	\$12.00 to \$12.50
No. 1 railroad wrought	13.25 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	12.00 to 12.50
Machine shop turnings	9.50 to 10.00
Cast iron borings, chemical	11.50 to 12.00
Cast iron borings, rolling mill	9.50 to 10.00
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	10.00 to 10.50
Bundled skeleton, long	10.00 to 10.50
Forged flashings	10.00 to 10.50
Bundled cotton ties, long	8.50 to 9.00
Bundled cotton ties, short	10.00 to 10.50
Shafting	18.25 to 18.50
Street car axles	18.00 to 18.50
Rails for rerolling	13.50 to 14.00
Scrap rails	12.00 to 12.50

Buffalo

Pig Iron Demand Improves—Finished Steel and Scrap Quiet

BUFFALO, Jan. 19.—The total amount of pig iron inquiry for the current week was close to 10,000 tons, as against about 1000 tons for the previous week. The business pending includes 2000 tons of malleable for the New York Air Brake Co., and another malleable inquiry for 1000 tons. A large inquiry has been received from Canada, but it is probable that the business will not be placed here, although details regarding the tonnage are lacking at this time. Inquiries of 100 and 200 tons are common. Furnace men are concerned over the upward tendency of coke. Foundry iron still ranges from \$21 to \$22, base furnace, and buyers are encountering little difficulty in buying at the lower

figure. Differentials are charged. For instance, \$21 is the price for malleable up to 2.25 per cent silicon, and sales of 3.40 per cent have been made at \$24.50. The same rule applies to foundry iron. Pig iron production in this district for 1925 was 1,831,715 tons, a slight increase over the 1924 output.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	\$21.00 to \$22.00
No. 2X foundry, sil. 2.25 to 2.75	21.50 to 22.50
No. 1 foundry, sil. 2.75 to 3.25	22.50 to 23.50
Malleable, sil. up to 2.25	21.00 to 22.00
Basic	20.50 to 21.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Demand is fair, with a considerable number of small orders being placed, but no large volume of tonnage is in the market. Mills are unable to maintain the price of 2.365c., Buffalo, on bars. One or two sizable bar inquiries are out. Sheet inquiries are lighter, with 4.60c., base Pittsburgh, being quoted on galvanized and 3.35c. on black. Mills are sold ahead for the quarter. Nut and bolt business is fair, with specifications good and the prices holding. Canadian demand has improved in the past few weeks.

Warehouse prices are being quoted as follows: Steel bars, 3.30c. per lb.; steel shapes, 3.40c.; steel plates, 3.40c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized, 5.75c.; cold-rolled shapes, 4.45c.; cold-rolled rounds, 3.95c.; wire nails, 3.90c.; black wire, 3.90c.

Old Material.—The market is quiet and without improvement. There is no buying except by one mill, which is still paying \$17 to \$18 for melting steel. Consumption throughout the district is heavy and some purchasing is expected by the latter part of the month. Most of the dealers have orders that carry into February. Pittsburgh and eastern Pennsylvania districts show activity, and sales of heavy melting steel have been made in Pittsburgh at \$19.50, delivered. Pittsburgh dealers are offering \$15.50 to \$15.75, delivered, for mixed borings and turnings. Sales of borings have been made at \$14.50, Buffalo, during the past week, though \$14 probably more nearly represents the market. Small lots of low phosphorus scrap are being sold up to \$20.50. Some short sales of cast scrap have been made at \$17.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	\$17.50 to \$18.50
Low phosphorus	20.00 to 21.00
No. 1 railroad wrought	16.50 to 17.00
Car wheels	17.50 to 18.00
Machine shop turnings	13.50 to 14.00
Mixed borings and turnings	14.00 to 14.50
Cast iron borings	14.00 to 14.50
No. 1 busheling	17.50 to 18.00
Stove plate	15.00
Grate bars	14.50 to 15.00
Hand-bundled sheets	13.00 to 13.50
Hydraulic compressed	17.50 to 18.50
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	20.00 to 21.00
No. 1 cast scrap	17.50 to 18.00
Iron axles	26.00 to 27.00
Steel axles	20.00 to 21.00

Cincinnati

Coke Advances but Pig Iron, Although in Better Demand, Is No Stronger

CINCINNATI, Jan. 19.—While there has been a partial revival of pig iron buying, the market is devoid of important inquiries. Sales in the past week have totaled more than 6000 tons, thereby exceeding any week since early in December. Furnaces in the Ironton district are holding to \$21, base Ironton, for foundry grades, and are willing to book tonnages for the second quarter at that figure, although they are not actively soliciting business for that delivery. Alabama producers are still refusing to quote for second quarter, and since they have no iron to sell for early shipment, they are temporarily out of the market. Interest has been shown in Tennessee iron which is available at \$22, base Birmingham, a sale of 1000 tons having been made to the Columbia Sanitary Mfg. Co., Louisville. Malleable iron is stronger, and is firm at \$21, base Ironton. The movement of silvery grades has been restricted to carload lots, but prices are steady. The Wickham Piano Plate Co., Springfield, Ohio, has purchased 1000 tons of

Northern foundry iron, and is expected to buy a similar tonnage the coming week. A Dayton, Ohio, consumer bought 300 tons. Inquiry is limited to small lots for prompt delivery. Since prices are not showing a tendency to stiffen, buyers are not likely to take much interest in second quarter iron until February.

Based on freight rates of \$3.69 from Birmingham and \$2.27 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	\$25.69
Alabama fdy., sil. 2.25 to 2.75	26.19
Tennessee fdy., sil. 1.75 to 2.25	25.69
Southern Ohio silvery, 8 per cent	32.77
Southern Ohio fdy., sil. 1.75 to 2.25	23.27
South'n Ohio, malleable (nominal)	23.27

Reinforcing Bars.—Sellers are figuring on several small jobs which will be awarded in the next 10 days. No change has occurred in prices, new billet bars selling at 2c., Cleveland, and rail steel bars at 1.90c., mill.

Warehouse Business.—A slow, but steady, increase in the volume of business is reported by the jobbing trade. The demand has centered in bars and sheets. Structural steel has been comparatively inactive because of inclement weather. Quotations are unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.30c. per lb.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c. to 4.30c.; No. 28 galvanized sheets, 5.25c. to 5.40c.; No. 9 annealed wire, \$3 per 100 lb.; common wire nails, \$2.95 per keg base; cement coated nails, \$2.25 per keg; chain, \$7.55 per 100 lb. base; large round head rivets, \$3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft.: lap-welded steel tubes, 2-in., \$18; 4-in., \$38; seamless, 2-in., \$19; 4-in., \$39.

Coke.—The present price flurry in the Connellsville district is reflected in the local market. Connellsville foundry has soared \$2 a ton, while the quotations on Wise County foundry have increased \$1. New River furnace coke is now \$8.59, delivered Cincinnati, an advance of 50c. caused by the demand for furnace grades for domestic purposes. At least one producer in the Wise County field is asking 25c. a ton more for his furnace coke than a week ago, and is quoting a delivered price in Cincinnati of \$8.34. Shipments of by-product foundry have declined slightly as compared with those in December, but this loss is offset by the increased movement of domestic by-product coke. The new freight rate of \$2.59 from New River ovens to Cincinnati is expected to put producers in that district in a better position to compete for local business.

Based on freight rates of \$2.14 from Ashland, Ky., \$3.53 from Connellsville, and \$2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, \$9.53 to \$10.53; Wise County foundry, \$9.09; New River foundry, \$9.59 to \$10.59; by-product foundry, \$10.64.

Finished Material.—In specifications and orders, the first half of January compares favorably with the corresponding period in December. While no large tonnages have come out, the total volume of business has been satisfactory. Many industrial plants which bought heavily in the latter part of the fourth quarter have been active purchasers of bars and sheets. Considerable selling effort has been concentrated on bars, which are bringing 2c. to 2.10c., base Pittsburgh, with most orders being taken at the former figure. There is a moderate demand for plates, but single carloads can be purchased for 1.90c., base Pittsburgh, although several mills are holding to 2c. Structural shapes are selling at 2c. to 2.10c., base Pittsburgh. Despite the fact that consumers are buying galvanized sheets in sizable lots, a slight weakness in prices has cropped out. In several instances mills have offered material at 4.50c., base Pittsburgh, but this price is hardly representative of the market, which stands at 4.60c. Blue annealed sheets are moving freely at 2.50c., base Pittsburgh. Activity in black sheets is pronounced, and prices are firm at 3.35c., base Pittsburgh. Automobile sheet specifications for the first quarter have been small, because of a seasonal lull in the motor car industry. They are quoted at 4.50c., base Pittsburgh. Wire goods are showing increasing strength, with sales of common wire nails at river points the outstanding feature. There is a healthy demand for fencing. Prices of common wire nails are \$2.65 per keg, Pittsburgh or Ironton. Plain wire is sell-

ing at \$2.50 per 100 lb., Pittsburgh or Ironton. An important inquiry from the Big Four for plates and wire goods is still pending. It is reported that the Pittsburgh Steel Co. is low bidder on the latter.

Old Material.—The market is extremely weak, and there is no indication of an improvement in the near future. Prices on many items have dropped 50c. a ton. Dealers paid from 50c. to \$1.50 a ton less for railroad offerings this month than in December. A suspension of shipments to Portsmouth, Ohio, steel mills has had a disturbing effect upon the market. Many dealers have considerable stock in their yards and are holding it in anticipation of a rise in prices within the next 60 days.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	\$14.00 to \$14.50
Scrap rails for melting	14.00 to 14.50
Short rails	18.00 to 18.50
Relaying rails	27.00 to 27.50
Rails for rolling	15.50 to 16.00
Old car wheels	13.50 to 14.00
No. 1 locomotive tires	16.50 to 17.00
Railroad malleable	15.50 to 16.00
Agricultural malleable	14.50 to 15.00
Loose sheet clippings	9.50 to 10.00
Champion bundled sheets	11.00 to 11.50

Per Net Ton	
Cast iron borings	9.00 to 9.50
Machine shop turnings	7.50 to 8.00
No. 1 machinery cast	19.50 to 20.00
No. 1 railroad cast	15.50 to 16.00
Iron axles	23.00 to 23.50
No. 1 railroad wrought	11.50 to 12.00
Pipes and flues	9.00 to 9.50
No. 1 busheling	10.00 to 10.50
Mixed busheling	9.00 to 9.50
Burnt cast	9.50 to 10.00
Stove plate	10.50 to 11.00
Brake shoes	10.50 to 11.00

New York

Pig Iron More Active, But Weaker—
Inquiry for Steel Light

NEW YORK, Jan. 19.—Pig iron inquiry is gaining in volume, but as yet is confined to first quarter needs. A number of considerations have encouraged melters to postpone their second quarter purchases. In the first place, eastern Pennsylvania iron has declined 50c. to \$22.50, base furnace—an indication that the blowing in of additional capacity has made competition more keen. Moreover, buyers see no reason to be stampeded into action by the failure of the anthracite conference and the consequent increase in coke prices. Already the advance in coke has met with resistance in this city, the largest market for domestic grades, where large distributors are urging customers to concentrate on the sale of soft coal. But regardless of the immediate course of the demand for domestic coke, pig iron buyers find assurance in the belief that furnaces are protected by contracts through this quarter and will find it possible to delay the purchase of second quarter coke until the winter is well over and with it the pressure for fuel for house heating purposes. A factor for possible strength, however, is found in higher prices asked by European furnaces. British and Continental irons in second hands, which were bought some time ago, are still being offered at prices comparable with those ruling for some time, but when this material is disposed of the higher quotations will rule, it is believed. Sales of pig iron through local selling agents totaled about 10,000 tons for the past week. The Worthington Pump & Machinery Corporation is understood to have closed for 600 tons of foundry for its Harrison, N. J., plant, but is believed to be still in the market for 100 tons of charcoal. A locomotive company has bought 700 tons of foundry for a Virginia plant, and an air brake manufacturer placed 2000 tons of malleable. About 2000 tons of various grades was bought locally for plants located west of Pittsburgh. Prominent among pending

inquiries is one for 2400 tons of foundry and charcoal for delivery to a locomotive plant.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25	\$25.02 to \$25.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.52 to 26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	26.02 to 26.52
Buffalo fdy., sil. 1.75 to 2.25	25.91 to 26.91
No. 2 Virginia fdy., sil. 1.75 to 2.25	29.54

Ferroalloys.—The sale of 400 tons of ferromanganese is the only moderately large one noted this week. The inquiry for 300 to 600 tons mentioned last week is understood not to have been placed yet. Aside from this, only carload and small lot sales and inquiry are heard of. The spiegeleisen market is a little more active with inquiries amounting to 1500 tons, distributed among three or four consumers. Prices continue firm and unchanged for both alloys.

Warehouse Business.—With most jobbers in this district, business evidently fell off slightly last week, but prices continue fairly firm. Much of this firmness in the case of black and galvanized sheets is attributed to the fact that warehouse prices are not in line with the present higher mill quotation. Non-ferrous metals continue substantially unchanged although demand is light. The expected decline in the price of zinc sheets has not developed and with stocks as a rule small, the prospects of a lower market seem to be diminishing. Prices on page 260. We quote boiler tubes per 100 ft. as follows:

Lap welded steel tubes, 2-in., \$17.33; seamless steel, 2-in., \$20.24; charcoal iron, 2-in., \$25; 4-in., \$67.

Finished Iron and Steel.—Consumers' wants are being amply provided for by shipments against specifications received by the mills at the end of last year and new business is not yet in full swing. Inquiries are extremely light and are mostly for very small lots. Unless specifications on first quarter contracts come in much more heavily before the end of the month it is probable that orders will fall below shipments this month. With most mills contracts are not counted as tonnage on the books until shipping instructions are received. Structural steel lettings have lagged since the first of the year, and the expected improvement in railroad buying of cars and locomotives has not yet materialized. Prospects of railroad buying are numerous and run into a large total of cars, but inquiries are few. The Seaboard Air Line is expected to inquire shortly for 3000 or 4000 cars. Prices are being well maintained, the only marked exception being on black sheets, as previously reported. Current small orders for plates are usually being entered at 1.80c., Pittsburgh, by Eastern mills, but concessions of \$1 a ton are given on occasional lots of attractive size. Shapes continue at 1.90c., Pittsburgh, and steel bars at 2c., Pittsburgh.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c. per lb.; plates, 2.09c. to 2.14c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Coke.—The collapse of the anthracite strike negotiations has started coke on another upward movement. Purchasers of foreign coke were able to dispose of holdings at a profit instead of a loss. Domestic sizes range from \$11.50 to \$12.50 per ton, Connellsville. Foundry and furnace coke are firm at \$9 to \$9.50 per ton for prompt shipment but the market is rather quiet, most consumers evidently being fairly well covered with contracts. On contracts for February-March delivery as low as \$7.50 per ton is reported possible. By-product continues at \$11.52 per ton, delivered Newark or Jersey City, N. J.

Cast Iron Pipe.—Buying of gas pipe by private companies continues a feature. One of the largest of such purchases was that of close to 10,000 tons by the United Gas Improvement Co., Philadelphia, distrib-

uted among the Glamorgan Pipe & Foundry Co., American Cast Iron Pipe & Foundry Co., United States Cast Iron Pipe & Foundry Co., and the Pont-a-Mousson works. Municipal inquiry for water pipe has not yet developed to any extent. One of the few recent inquiries was from Malden, Mass., which opened bids today on 250 tons of water pipe. The French maker of pipe, represented by B. Nicoll & Co., New York, is providing slightly less competition, being booked up to April shipment or later on the smaller sizes. A recent export tonnage taken by this company was 4000 tons of 22-in. pipe for Guayaquil, Ecuador. The soil pipe market is inactive. As most of the tonnage on makers books at present was taken at lower than current quotations, no real test of the present schedule has yet been made.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$59.60 to \$52.60; 4-in. and 5-in., \$55.60 and \$57.60; 3-in., \$65.60 to \$67.60; with \$5 additional for Class A and gas pipe. Discounts both of Northern and of Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 42½ to 43¼ per cent off list; heavy, 52½ to 53¼ per cent off list.

Old Material.—Prices of most grades are showing a slight downward tendency, particularly evident in No. 1 heavy melting steel. Buying prices of brokers on this grade have dropped 50c. per ton to a range of \$16 to \$17 per ton, delivered eastern Pennsylvania. Stove plate for foundry use, lately nominal in price, shows a slight decline based on recent purchases by consumers at West Mahwah, N. J., and in Bridgeport, Conn. Brokers are now offering \$13.75 per ton, delivered to the former and \$13.50 per ton, delivered to the latter. The buying price on machine shop turnings is also off 25c. per ton.

Buying prices per gross ton, New York, follow:	
Heavy melting steel (yard).....	\$11.50 to \$12.00
Heavy melting steel (railroad or equivalent).....	13.25 to 13.75
Rails for rolling.....	13.50 to 14.00
Relaying rails, nominal.....	23.00 to 24.00
Steel car axles.....	20.00 to 20.50
Iron car axles.....	24.50 to 25.00
No. 1 railroad wrought.....	14.50 to 15.00
Forge fire.....	10.50 to 11.00
No. 1 yard wrought, long.....	14.00 to 14.50
Cast borings (steel mill).....	10.25 to 10.75
Cast borings (chemical).....	14.00 to 14.50
Machine shop turnings.....	10.25 to 10.75
Mixed borings and turnings.....	10.75 to 11.25
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	12.25 to 12.75
Stove plate (steel mill).....	10.50 to 11.00
Stove plate (foundry).....	11.25 to 11.75
Locomotive grate bars.....	11.50 to 12.00
Malleable cast (railroad).....	16.50 to 17.50
Cast iron car wheels.....	14.00 to 14.50
No. 1 heavy breakable cast.....	14.00 to 15.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$18.00 to \$18.50
No. 1 heavy cast (columns, building material, etc.), cupola size.....	16.50 to 17.00
No. 2 cast (radiators, cast boilers, etc.).....	15.50 to 16.00

Youngstown

Production Heavy—Weakness in Sheets and Semi-Finished Believed Temporary

YOUNGSTOWN, Jan. 19.—Steel ingot production in the Youngstown district continues at close to 90 per cent this week, though there are some recessions in rolling mill schedules. Of 127 sheet mills in the Mahoning Valley, 117 started the week, against 105 for the preceding week, and a high of 121 in December. Tube mill schedules show the further loss of one mill, leaving 11 of 18 under power. The American Sheet & Tin Plate Co. has added another turn to the operation of 10 of its 12 sheet mills at the Mercer, Pa., works. Of 53 independent open hearth furnaces in the Valley, 44 are active, while the Steel Corporation is on an 85 per cent basis. The Youngstown Sheet & Tube Co. is averaging slightly under 90 per cent and the Republic Iron & Steel Co. 85 per cent.

Independent merchant steel bar capacity is producing at close to a 100 per cent rate.

Producers of by-product coke are benefiting from demand created on account of the anthracite coal strike,

and are shipping substantial tonnages to Eastern points for commercial and industrial consumption. A number of blast furnace interests securing coke under contract at \$4 per ton, have seriously considered the suspension of their stacks, in order to divert coke supplies to the open market, where prices \$3 to \$4 per ton higher are obtainable.

Pig iron producers believe the coke situation is likely to cause an advance in pig iron costs and in prices.

Mahoning Valley sheet makers contend that prices are being generally upheld, and that the tonnage on which concessions are accepted is relatively small, as compared with the aggregate production.

In the meantime, some temporary price weakness has developed in semi-finished steel, affecting in particular sheet bars, slabs and billets. Open market tonnages, hitherto unavailable below \$38, comparing with the contract price of \$36 to non-integrated sheet rolling interests, may now be secured at the lower quotation.

The principal independents here are inclined to believe that any price changes in the immediate future will be in the direction of advances, and that such recessions as are developing are only temporary and exert no effect on the market at large.

Birmingham

Pig Iron Strong Despite Lull in Buying—Heavy Coke Demand

BIRMINGHAM, Jan. 19.—An easing up of pig iron buying has not weakened the market. Little, if any, foundry iron is on furnace yards in this district and output is practically at capacity. One or two blast furnaces may be blown in a little later if raw material supplies can be satisfactorily arranged for. Anticipated deliveries of iron, which were common for several weeks, ranging from small lots to a considerable tonnage, are not heard of now, but furnaces are kept busy taking care of regular specifications. Spot buying has declined, but a number of smaller industries which ordinarily buy for immediate needs are expected to return to the market. Furnaces have not yet opened their books for second quarter. A weekly survey of the foundry industry shows that melt is being well maintained and nothing is in sight to alter this condition. Pipe shops, jobbing foundries and other industries are active. Spring is fast approaching and a further accumulation of business is probable.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.....	\$22.00 to \$23.00
No. 1 foundry, 2.25 to 2.75 sil.....	22.50 to 23.50
Basic.....	22.00
Charcoal, warm blast.....	30.00 to 32.00

Rolled Steel.—Optimism is the rule in this district both as to present mill operations and prospects for new business. Railroad purchases have been heavy and some of the mills catering to the carriers are assured steady production for several months. Wire and nails are in better demand. Moreover, the outlook for export business is brighter. Local fabricating plants are pressing for deliveries of plain material. Soft steel bars continue to be quoted at 2.15c. to 2.25c., base Birmingham, and tank plates and structural shapes at 2.05c. to 2.15c.

Cast Iron Pipe.—There has been very little let-up in the operations of cast iron pressure pipe manufacturers, and shipments have been steady. With spring approaching, greater production is looked for within the next 60 days. Unfilled tonnage is still large, though recently little has been added.

Coke and Coal.—Coke is strong. Nut coke, heretofore not a favorite size, has found an active demand in larger cities where anthracite coal has been the common fuel. Quotations on foundry coke, both beehive and by-product, hold firmly at from \$5.75 to \$6, Birmingham, while a little coke has been sold again at as high as \$6.50. Transportation service is better, with open top cars plentiful for the local territory and box cars for shipments to Chicago, Detroit and other out-

side points. All the bituminous coal that can be mined in this district is being marketed.

Old Material.—In view of the large melt of scrap, deliveries at a steady pace are assured for some time. New business is in small lots, and quotations remain unchanged. It is felt the scrap consumption will remain heavy as long as pig iron is above \$20.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical.....	\$15.00 to \$16.00
Heavy melting steel.....	14.00 to 14.50
Railroad wrought.....	13.00 to 13.50
Steel axles.....	19.00 to 20.00
Iron axles.....	18.00 to 19.00
Steel rails.....	14.00 to 14.50
No. 1 cast.....	17.00 to 17.50
Tramcar wheels.....	17.00 to 17.50
Car wheels.....	16.00 to 16.50
Stove plate.....	14.00 to 14.50
Machine shop turnings.....	8.00 to 8.50
Cast iron borings.....	8.00 to 8.50
Rails for rolling.....	17.50 to 18.00

Cleveland

Lull in Demand from Automotive Industry—Concessions in Sheets

CLEVELAND, Jan. 19.—With some of the mills orders for finished steel improved somewhat the past week, but the market is not very active. However, the slowing down has not been sufficient to cause any speeding up of deliveries by some of the mills. As most consumers are under contract, orders at present are largely specifications against contracts. Some of the Detroit automobile companies are operating at reduced schedules as compared with late in the year, and the outlook for the industry during the next few weeks is still rather hazy, although the feeling is optimistic and some good releases to the mills are looked for in the next few days. The Hudson Motor Car Co. has placed a large order for steel and car parts, including forgings that went to shops in this territory. At present, most of the automobile companies are acting rather slowly in buying steel and are limiting their purchases to early requirements. Price reductions on cars seem to have been passed along in some cases to parts makers, who are getting lower prices than last year, although their steel is costing them more. The outlook in the structural field shows a decided improvement. The taking of bids by the Cleveland Union Terminals Co. for the Tower Building, a part of the Cleveland depot project, has been postponed until Feb. 1. It is stated that the steel for this building, previously estimated at 15,000 tons, will amount to 20,000 tons. Another inquiry has come out in connection with this project, this being for the Eagle Avenue Bridge, requiring 1000, or more, tons. The Nickel Plate system has an inquiry out for 500,000 tie plates, or 2500 tons, for the Nickel Plate and Clover Leaf railroads.

The price situation is characterized by the efforts of mills to hold quotations to present levels. Steel bars are firm at 2c., Pittsburgh. Plates show no particular sign of strength, although some of the smaller mills report an improvement in orders. The usual price range on plates in this territory is 1.85c. to 1.90c., base Pittsburgh, although quotations as low as 1.80c. are still a factor. Specifications against first quarter contracts are rather light, since consumers here have good stocks or continue to receive shipments on fourth quarter contracts. However, most mills are still comfortably filled with orders and are holding firmly to regular prices. The only weakness in evidence is on black sheets on which a concession of \$2 a ton to 3.25c., base Pittsburgh, is reported.

Jobbers quote steel bars, 3.10c. per lb.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 10 blue annealed sheets, 3.25c.; cold-rolled rounds and hexagons, 3.90c.; flats and squares, 4.40c.; hoops and bands, 3.85c.; No. 9 annealed wire, \$3 per 100 lb.; No. 9 galvanized wire, \$3.45 per 100 lb.; common wire nails, \$3 base per keg.

Pig Iron.—The sharp advance in coke which followed the failure to settle the anthracite strike has resulted in some talk of higher pig iron prices. Owners of two or three furnaces are considering banking their

stacks in order to sell all their by-product coke, figuring that there is more profit in coke than in pig iron at present prices. The pig iron market does not show much life. Cleveland interests during the week sold 8000 tons. A large part of this was in orders for small lots from foundries that are buying from hand to mouth. A few sales were for the second quarter, although consumers generally are not showing much interest in iron for that delivery. Prices are unchanged at \$20.50, base Valley furnace, for foundry iron and \$23, Lake furnace, for western Ohio, Michigan and Indiana delivery. A Cleveland producer which has been out of the market for some time, with the exception of the sale of a limited amount of special iron, is now in a position to take first quarter business and is quoting foundry iron at \$21, furnace, for outside shipment and \$22, furnace, for Cleveland delivery. It will take orders at the same prices for the second quarter. Although shipping orders have improved, iron is not being taken in the volume that it was before the lull that preceded the inventory period. However, heavy shipments are being taken by some of the larger automobile foundries. Low phosphorus iron is quiet and lower, small lot sales being made at \$27.50, Valley furnace.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6.01 from Birmingham:

Basic, Valley furnace.....	\$20.00
N't'n No. 2 fdy., sil. 1.75 to 2.25.....	\$22.26 to 22.50
Southern fdy., sil. 1.75 to 2.25.....	\$27.01 to 28.01
Malleable.....	22.26 to 22.50
Ohio silvery, 8 per cent.....	33.52
Standard low phos., Valley furnace.....	27.50 to 28.00

Iron Ore.—More interest is being shown in iron ore prices as the buying season draws near. While there has been some talk of price advances of from 50c. to \$1 a ton, this has not come from leading producers. If any advance is made, which is still doubtful, it seems certain that it will not exceed 50c. a ton and it may be even less. Some inquiry has come from furnaces that wish to line up part of their ore requirements, but no inquiry has appeared that is intended to bring out prices. The naming of prices is not expected for several weeks.

Coke.—Another flurry in coke has put prices beyond the reach of blast furnaces and foundries. Quotations on Connellsville foundry coke range from \$9 to \$10, ovens. While some dealers are offering \$11, ovens, for by-product coke for domestic use, that price is meeting resistance. Some of the Ohio producers of by-product coke are filled up for the present with orders at \$8.50, ovens, and have not yet been able to take advantage of present high prices.

Bolts, Nuts and Rivets.—Specifications against bolt and nut contracts have improved in the past week, and demand is now fairly good. There is little new business, as most consumers are under contracts. Prices are firm. Rivet specifications are fair. Small rivets are holding at the regular discount of 70 and 10 per cent off list, except on large lots.

Reinforcing Bars.—The demand, which has been slow, shows some improvement. Two awards, aggregating 550 tons, are reported. Rail steel bars are unchanged at 1.80c. to 1.90c., mill.

Semi-Finished Steel.—With \$36, Youngstown, for sheet bars and small billets and \$35 for slabs and large billets the recognized prices in this territory, efforts to get higher prices seem to have disappeared. Several consumers have been able recently to place orders at these prices. Consumers have refused to specify against higher priced contracts and it is understood that some of these have been revised to meet the present market situation. With a slowing down by some of the mills over the inventory period and liberal shipments by producers, the supply of semi-finished material is plentiful and consumers have good stocks; consequently specifications are light. The McKinney Steel Co., which shut down its open-hearth plant about 10 days ago for lack of specifications, has resumed operations with four open-hearth furnaces, and plans to start up several more later in the week.

Strip Steel.—Orders for hot-rolled steel from the

automotive industry are not plentiful, and some of the mills have little tonnage on their books. However, some makers of hoops and bands are eight to 10 weeks behind on deliveries. Prices are firm.

Old Material.—The market is still virtually at a standstill. Mills have not yet released shipments that were held up before the holidays. Dealers are well covered against outstanding contracts and are holding back on shipments from their sources of supply, so that little distress material is coming on the market. Borings, turnings and busheling are about 25c. a ton lower, but most quotations are regarded as nominal.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$16.50 to \$17.00
Rails for rolling.....	16.75 to 17.00
Rails under 3 ft.....	19.50 to 20.00
Low phosphorus melting.....	18.75 to 19.00
Cast iron borings.....	13.50 to 13.75
Machine shop turnings.....	13.50 to 13.75
Mixed borings and short turnings.....	13.50 to 13.75
Compressed sheet steel.....	15.50 to 16.00
Railroad wrought.....	14.50 to 15.00
Railroad malleable.....	20.00 to 20.50
Light bundled sheet stampings.....	12.50 to 12.75
Steel axle turnings.....	15.25 to 15.50
No. 1 cast.....	18.00 to 18.50
No. 1 busheling.....	13.50 to 13.75
Drop forge flashings.....	14.75 to 15.00
Railroad grate bars.....	13.75 to 14.00
Stove plate.....	13.75 to 14.00
Pipes and flues.....	11.50 to 12.00

Philadelphia

Pig Iron and Scrap Markets Show Signs of Weakness—New Business Lagging

PHILADELPHIA, Jan. 19.—More frequent offerings of domestic pig iron by at least one Eastern furnace at 50c. a ton below the recent market level, urgent selling of foreign iron at price concessions because of heavy receipts, and a general decline of scrap prices are the developments of interest in the week's markets. The tone of the pig iron market is decidedly weaker despite the fact that most of the active furnaces are holding firmly to a \$23 base and have full order books. Foreign iron has been offered so freely by a number of importers that price competition has resulted and any fears among consumers that there would not be plenty of iron for all needs have been quieted. The scrap market is very weak and prices on nearly all grades are lower by at least 50c. a ton.

New business in steel, as differentiated from specifications on contracts, is extremely light. Some consumers have begun to specify against first quarter contracts, but the general situation is that users have enough steel coming to them on fourth quarter contracts specified late in December to take care of their January requirements. The rate of consumption is high, however, and the steel companies expect that January quotas will be taken out in full at the end of the month. Except on black sheets, which show some weakness, steel prices remain fairly firm.

Pig Iron.—On recent inquiries for fairly large lots of foundry iron quotations of \$22.50, base furnace, were submitted, this being 50c. a ton below the figure to which most of the furnaces are adhering. The lower quotations are attributed to a furnace which is attempting to get a backlog, having only recently gone in blast. The furnaces that were in blast last fall have full order books and are not in any sense anxious sellers, but it is plain that a furnace that is aggressively seeking business must make concessions if it is to meet the competition of foreign iron, which has grown stronger in the past week or two. Considerable iron has come in from abroad and a good many thousand tons have been unloaded on cars at Philadelphia which ordinarily would have been transported to Florence, N. J., but ice in the Delaware River prevented that movement. Some of this iron was widely offered for sale by means of circular letters. Other importers have been hard after business and the effect of all this is to assure the consumers that iron will not be lacking when they need it. Nearly 12,000 tons of foreign iron came into Philadelphia last week, close to 9000 tons of

it from England. Prices on foreign iron of standard analyses range from \$20.50 to \$23, Philadelphia, the higher figure applying usually on small lots. Some of the best of the European iron is to be had at not over \$22. High phosphorus iron has been offered at \$19.50 to \$20. The Pennsylvania Railroad is inquiring for 3000 to 5000 tons of special iron, some of it approximating basic in analysis. The Pusey & Jones Co., Wilmington, Del., bought close to 1000 tons, about half domestic and half foreign. The J. L. Mott Iron Works, Trenton, N. J., is in the market for 500 tons of domestic iron. The Colonial furnace has gone in blast.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.....	\$23.76 to \$24.13
East. Pa. No. 2X, 2.25 to 2.75 sil.....	24.26 to 24.63
East. Pa. No. 1X.....	24.76 to 25.13
Virginia No. 2 plain, 1.75 to 2.25 sil.....	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.....	28.17 to 29.17
Basic, delivered eastern Pa.....	23.00 to 23.50
Gray forge.....	23.00 to 23.50
Malleable.....	24.00 to 25.00
Standard low phos. (f.o.b. furnace).....	23.00 to 24.00
Copper bearing low phos. (f.o.b. furnace).....	24.00

Ferroalloys.—Current business in ferromanganese is inconsequential as to volume, but prices remain firm at \$115 for foreign or domestic, despite the fact that several important consumers recently covered their requirements at \$110. The Lavino Furnace Co. has been obliged to put out its Marietta furnace for relining, but Sheridan remains in blast and the Reusens furnace in Virginia, owned by this company, will make ferromanganese as soon as the work of relining it is completed.

Billets.—Demand for billets is moderate, many consumers having covered prior to the advance to \$36, Pittsburgh, now quoted by Eastern mills on rerolling quality. For forging quality the usual quotation is \$41, Pittsburgh.

Plates.—Eastern plate mills continue to maintain a fairly good operation on specifications received around the first of the year, though new business since that time has been slow. Quotations from all Eastern mills on current inquiries are uniform at 1.80c., Pittsburgh, though a concession of \$1 a ton on attractive lots is still to be had.

Structural Steel.—Several of the more important local jobs are being held up and awards of the week have been small. The building outlook is encouraging, however, and a new crop of inquiries is expected soon. Quotations on plain material are usually 1.90c., Pittsburgh, but concessions are sometimes obtainable from Eastern mills on large lots.

Bars.—The situation as to bars is fairly satisfactory in that shipments are heavy and some new business is coming in. Most consumers are fully covered for first quarter, but specifications of January quotas are a little slow in being released. No deviations from the 2c. price are reported. Bar iron is in fair demand, with the price remaining at 2.22c., Philadelphia.

Sheets.—Occasional concessions of \$2 a ton on black sheets are reported, but galvanized and blue annealed sheets seem to be less affected. The demand so far this month has been light, but consumers are well covered and the mills have substantial backlogs.

Warehouse Business.—Irregularities in prices quoted by local warehouses still exist, particularly on steel bars. The volume of buying is fairly good. For local delivery jobbers quote as follows:

Soft steel bars and small shapes, 3.20c. per lb.; iron bars (except bands), 3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel, planished, 4.30c.; tank steel plates, ½-in. and heavier, 2.80c. to 3c.; tank steel plates, ¾-in., 3c.; blue annealed steel sheets, No. 10 gage, 3.50c.; black sheets, No. 28 gage, 4.65c.; galvanized sheets, No. 28 gage, 5.85c.; square, twisted and deformed steel bars, 3c.; structural shapes, 2.75c. to 2.90c.; diamond pattern plates, ¼-in., 5.30c.; ⅝-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4.25c., base; steel bands, No. 12 gage to ⅝-in., inclusive, 3.90c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Imports.—Pig iron receipts at this port in the week ended Saturday totaled 11,890 tons, divided as follows: From England, 8934 tons; from India, 1530; from Strasbourg, 926; from Germany, 500. Other imports included 6967 tons of manganese ore from British West Africa and 4176 tons from Brazil; 207 tons of ferromanganese from England; 580 tons of steel blooms from France; 32 tons of rolled charcoal iron from Sweden, and 28 tons of hoops from England.

Old Material.—A sharp recession in scrap prices has developed within the week, the marked weakness giving rise to expectations that prices may seek still lower levels. Practically all of the eastern Pennsylvania steel companies are covered on steel scrap for the next 30 to 60 days, and, in the realization that no more business in that quarter is to be expected for several weeks, dealers have swamped the market with offerings. The weakness affecting steel scrap has extended to nearly all grades and prices are generally at least 50c. a ton below those quoted a week ago. Scrap is plentiful and the scrap trade has revised its recent opinion that large production schedules at steel plants would carry prices to levels higher than those recently reached.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel.....	\$17.00
Scrap rails	17.00
Steel rails for rolling.....	\$18.00 to 18.50
No. 1 low phos., heavy 0.04 per cent and under.....	21.50 to 22.00
Couplers and knuckles.....	20.50 to 21.00
Roller steel wheels.....	20.50 to 21.00
Cast iron car wheels.....	18.00 to 18.50
No. 1 railroad wrought.....	18.50
No. 1 yard wrought.....	17.00 to 17.50
No. 1 forge fire.....	15.00 to 15.50
Bundled sheets (for steel works)	14.00 to 14.50
Mixed borings and turnings (for blast furnace)	13.50 to 14.00
Machine shop turnings (for steel works)	14.00 to 14.50
Machine shop turnings (for rolling mill)	14.50 to 15.00
Heavy axle turnings (or equivalent)	15.00 to 15.50
Cast borings (for steel works and rolling mill).....	14.00 to 14.50
Cast borings (for chemical plant)	16.50 to 17.00
No. 1 cast.....	18.50
Heavy breakable cast (for steel works)	17.00 to 17.50
Railroad grate bars.....	14.50 to 15.00
Stove plate (for steel works)	14.50 to 15.00
Wrought iron and soft steel pipes and tubes (new specifications)	16.50
Shafting	23.00 to 24.00
Steel axles	23.50 to 24.50

Weakness in Detroit Scrap Market

DETROIT, Jan. 19.—Considerable weakness has developed in the market on old material in this district during the past two weeks. With considerable material coming out from the largest producers and shipments being curtailed somewhat, dealers recognize the possibility of further declines. Steel orders are not being specified as rapidly as had been expected, with the result that the mills are not anxious to buy until present orders begin to move.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate. No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	\$14.50 to \$15.00
Borings and short turnings.....	11.00 to 11.50
Long turnings	10.50 to 11.00
No. 1 machinery cast.....	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	13.75 to 14.25
Stove plate	13.50 to 14.50
No. 1 busheling.....	13.25 to 13.75
Sheet clippings	9.00 to 9.50
Flashings	11.50 to 12.00

Slag Cement Plant at Lackawanna

BUFFALO, Jan. 19.—The report is confirmed that the Bethlehem Steel Corporation is interested in the cement plant which will be built near the Lackawanna plant, using slag from the blast furnaces. Heretofore the steel company has sold its slag on contract.

REINFORCING STEEL

Awards 2290 Tons and 2820 Tons Pending, Mostly in Small Lots

The week's awards of concrete reinforcing steel, as reported to THE IRON AGE, total 2290 tons, of which the largest was 350 tons. Pending jobs total 2820 tons, including 1000 tons for a veterans' hospital at Fort Snelling, Minn. Awards follow:

O'Rourke Apartments, Delaware Avenue and DeWitt Street, Chicago, 170 tons of rail steel, to Calumet Steel Co.

Swift & Co., Sioux City, Iowa, 160 tons of rail steel, to Olney J. Dean & Co.

Hotel, 644 Cass Street, Chicago, 280 tons of rail steel, to Olney J. Dean & Co.

Office building, Wabash Avenue and Monroe Street, Chicago, 300 tons, to Concrete Steel Co.

Jefferson Avenue viaduct over Terminal Railway Association tracks, St. Louis, 250 tons, to Laclede Steel Co.

Vantage Ferry Bridge, across Columbia River on North Central Highway, Wash., 250 tons, to United States Steel Products Co.

Chevrolet Motor Co., garage, New York, 230 tons to Truscon Steel Co.

Section of subway, New York, 100 tons to Kalman Steel Co., placed by Rosoff Subway Construction Co., general contractor.

W. S. Tyler Co., Cleveland, factory building, 350 tons, to Franklin Steel Works.

Philadelphia Rubber Co., Oakes, Pa., 200 tons, to Franklin Steel Works.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

Covington Finance Co., Covington, Ky., building, 125 tons; bids in.

United States Veterans Hospital, Fort Snelling, Minn., 1000 tons.

Roanoke Building, Chicago, 150 tons; Holabird & Roche, architect.

Tinkertoy manufacturing building, 721 Custer Avenue, Evanston, Ill., 200 tons; J. M. McConnell, engineer.

Cornell Apartment, Fifty-fourth Street and Cornell Avenue, Chicago, 450 tons. Schmidt, Garden & Martin, architects.

Antone Hotel, 17 East Ohio Street, Chicago, tonnage being estimated; G. E. Harris, architect.

Washington University, St. Louis, biology building, 115 tons.

Merritt Hosiery Co., building, Woodhaven, N. Y., 130 tons.

Procter & Gamble Co., plant building, Port Ivory, Staten Island, N. Y., 100 tons.

Bonnell Motor Co., building, Newark, N. J., 400 tons; revised general contract figures to be taken next week.

School for Feeble Minded, Totowa, N. J., 150 tons; general contract placed with C. L. Smith, Trenton, N. J.

Employment Declines in Metal Trades

A sharp decrease in employment in December was reported to the National Metal Trades Association, Chicago, by shops located in New England, New York, Pennsylvania, Ohio, Indiana, Michigan, Wisconsin, Illinois, Iowa and Missouri. The total number of employees was 491,747, as compared with 636,151 in November, 637,160 in October, and 617,768 in September. The sharpest decrease in December was at Detroit, which reported 129,104 employed, as against 264,221 in November. This decline is attributed to the shutting down of plants for inventory-taking.

The annual conference of the sales and operating executives of the Weirton Steel Co., Weirton, W. Va., was concluded with a banquet at the Fort Steuben Hotel, Steubenville, Ohio, Saturday evening, Jan. 9. The gathering numbered 130 and there were addresses by E. T. Weir, president, J. C. Williams, vice-president and general manager, and by H. D. Westfall, vice-president in charge of sales.

FABRICATED STEEL

Bookings of 1925 Record by 13 Per Cent— December Tops November

WASHINGTON, Jan. 19.—Sales of fabricated structural steel for December, 1925, represented 75 per cent of capacity, based on total bookings of 191,019 tons, reported by 178 firms with a capacity of 255,530 tons, according to announcement of the Department of Commerce. This compares with 71 per cent of capacity in November when bookings reported by 195 firms with a capacity of 261,445 tons amounted to 186,809 tons.

Shipments of fabricated structural steel in December were made at the rate of 79 per cent of capacity, computed tonnage being 240,950 tons. Shipments in November were at the rate of 74 per cent of capacity.

Total bookings for the year 1925 by 200 identical reporting firms, including reports from additional firms now out of business, with allowances for a few missing firms, amounted to 2,327,437 tons, or 74 per cent of capacity, as against 2,088,489 tons booked in 1924 by the same firms representing 68 per cent of their 1924 capacity.

Shipments in 1925 by companies reporting this item represented 76 per cent of shop capacity as against 69 per cent in 1924.

The capacity of fabricators of structural steel during 1925 is estimated at 305,000 tons per month, as against 293,000 tons in 1924 and 285,000 in 1923, based on actual reports by 232 firms with a capacity of 279,991 tons in 1925 and estimated capacities of other firms.

The indicated bookings last year exceeded 2,708,000 tons, or 13 per cent more than the previous record of 2,390,000 tons in 1924.

Awards Less Than 13,000 Tons But Projects Up for Bids Total Over 29,000 Tons

Of 29,000 tons of structural steel work up for bids 6800 tons is for New York subway work and 6640 tons for a City Hall in Los Angeles. Awards during the week have been in small volume, the total being less than 13,000 tons, of which 4400 tons was for New York subway work. Awards follow:

New York subways, section 6, route 8, 1200 tons, to American Bridge Co.

New York subways, section 3, route 102, 4400 tons, to McClintic-Marshall Co.

Kolb Baking Co., Albany, N. Y., bakery building, 225 tons, to Jones & Laughlin Steel Corporation.

Apartment building, Ninety-third Street, New York, 350 tons, to George A. Just Co.

Apartment building, Madison Avenue, New York, 650 tons, to George A. Just Co.

City of Cairo, Ill., ferryboat, 100 tons, to Howard Ship Yards & Dock Co., Jeffersonville, Ind.

Mississippi River Commission, two boats for Vicksburg district, 300 tons, to Howard Ship Yards & Dock Co.

Chicago Memorial Hospital, Chicago, 600 tons, to A. Bolter's Sons Co., Chicago.

Aurora National Bank Building, Aurora, Ill., 475 tons, to American Bridge Co.

St. Leo Catholic High School, Chicago, 250 tons, to Hansell-Elcock Co., Chicago.

Commonwealth Edison Co., Crawford Avenue station, Chicago, 65-ft. extensions to stacks, 170 tons, to American Bridge Co.

City Hall, Pasadena, Cal., 300 tons, to Brombacher Iron Works, Los Angeles.

E. L. Boheny and associates, Los Angeles, theater, 400 tons, to Llewellyn Iron Works.

City of New Orleans, dredge pipe, 550 tons, to Pacific Coast Engineering Co., Oakland, Cal.

Unnamed company in Florida, dredge pipe, 125 tons, to Pacific Coast Engineering Co.

Southern Pacific Co., San Francisco, 230 tons, to unnamed Eastern mill.

Strouss-Hirschberg Co., Youngstown, department store, 2250 tons, to American Bridge Co.

Warehouse in Akron, Ohio, 100 tons, to American Bridge Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

New York subways, section 4, route 78, 6800 tons; bids close Jan. 29.

Tampa Electric Co., Tampa, Fla., addition to plant, 250 tons.

Delaware, Lackawanna & Western Railroad, bridge at Owego, N. Y., 1200 tons.

White Construction Co., manufacturing plant in Philadelphia, 500 tons.

Garage, Syracuse, N. Y., 700 tons.

Architects' Building, 101 Park Avenue, New York, addition, 1600 tons.

United Lead Co., Maurer, N. J., plant addition, 200 tons.

Procter & Gamble Co., plant addition at Port Ivory, Staten Island, New York, 500 tons.

Loft building, Eighth Avenue and Thirty-sixth Street, New York, 3200 tons.

Famous Players-Lasky Corporation, theater and office building, Cincinnati, tonnage unknown; Thomas Lamb, New York, architect.

Mississippi River Commission, 1311 International Life Building, St. Louis, steel hull for steamer Mississippi, 500 tons; bids close Feb. 16.

U. S. Engineer's Office, Louisville, metal work for dams Nos. 46, 49 and 50, Ohio River; tonnage unknown; bids close Feb. 11.

Rusnak furniture store, Chicago, 150 tons.

Northern Pacific Railway Co., girder spans, 1500 tons.

Office building, Bush and Montgomery Streets, San Francisco, 3000 tons.

City Hall, Los Angeles, 6640 tons, McClintic-Marshall Co., low bidder.

Cleveland Union Terminals Co., Eagle Avenue bridge, Cleveland, 1000 tons.

Owens Bottle Co. interests, factory at Charleston, W. Va., 1500 tons.

RAILROAD EQUIPMENT

Freight Car Orders Total 1360—Seaboard Air Line May Inquire for 3000 or 4000

Railroad orders for freight cars totaled only 1360 in the week, of which the Burlington bought 1000. The Seaboard Air Line may inquire soon for 3000 or 4000 and the Pacific Fruit Express may place orders this week for 5000 refrigerator cars. The principal items of the week follow:

The Burlington has placed 1000 box cars with the Pullman Car & Mfg. Corporation.

The Northern Refrigerator Transit Co. has contracted for 200 refrigerator cars with the Pullman Car & Mfg. Corporation.

The Great Northern placed 150 ore cars with the Pullman Car & Mfg. Corporation.

The Seaboard Air Line is expected to send out an inquiry soon for 3000 or 4000 freight cars.

The Northwestern Refrigerator Car Co. has ordered 325 steel underframes from the American Car & Foundry Co.

The Wabash has ordered 10 automobile box cars for replacement from the American Car & Foundry Co.

Orders may be awarded this week by the Pacific Fruit Express for about 5000 refrigerator cars.

The Great Northern Equipment Co., St. Paul, Minn., a part of the Great Northern Railroad, has ordered 17 locomotive tenders from the General American Car Co.

The Pennsylvania Railroad has ordered 100,000 rolled steel wheels from the Carnegie Steel Co., to be used on cars of light capacity, or from 50 to 55 tons. This order insures a good operation of the company's Schoen plant. No information is available as to the weight of the wheels or what the order means on a tonnage basis.

Total production of anthracite in 1925 was 62,120,000 net tons. Except for 1922 and for 1902, when the strikes were of longer duration, this is the lowest anthracite production of the twentieth century.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

Jan.	Copper, New York		Straits Tin (Spot)	Lead			Zinc	
	Lake	Electrolytic*		New York	St. Louis	New York	New York	St. Louis
13.....	14.25	13.87½	63.05	9.25	9.00	8.95	8.60	
14.....	14.25	13.87½	62.30	9.25	9.00	8.90	8.55	
15.....	14.25	13.87½	62.75	9.25	9.00	8.90	8.55	
16.....	14.12½	13.75	.....	9.25	9.00	8.85	8.50	
18.....	14.12½	13.75	61.75	9.25	9.00	8.75	8.40	
19.....	14.12½	13.75	61.75	9.25	9.00	8.67½	8.32½	

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Jan. 19.

January dullness still is evident in most of the markets. In some, prices are lower. Further weakness has developed in copper but the tone today is better. Substantial buying has appeared in tin at the lower levels. Very little change is noted in lead but quotations for zinc have eased off quite decidedly.

Copper.—There is no snap or life to the copper market, but it is plainly evident that there is a large potential demand which will sooner or later develop into orders. After a week of sagging prices, until electrolytic copper dropped to 14c., delivered, a decidedly better tone was in evidence today, based largely on more inquiry in this market and a cessation of declines in quotations across the water. While some metal is still available at 14c., delivered, it is believed that the quantity is now small. Most of the large producers are out of the market and asking at least 14.12½c., delivered. There are inquiries today of various quantities ranging from 4,000,000 to 20,000,000 lb. each, but very few have developed into orders, largely because producers are not willing to book them at the 14c. level. It is undeniable that any sustained advance in the copper market is impossible until buying by Europe, particularly Germany, has revived. Today there was more interest on the part of exporters, but thus far this year and during the latter part of last year, very little business has been done. Lake copper is quoted at 14.12½c., delivered.

Tin.—The past week has been an active one, one of the most lively in several weeks. Sales on Friday, Jan. 15, at 500 to 600 tons, were the largest for any one day, bringing the total for the week to approximately 2000 tons. The greater bulk was taken by consumers, mostly those located in the interior, with nearby delivery the position most eagerly demanded, although some business was recorded in the later positions, running into April arrivals. It was noticeable that one dealer was selling nearby tin and buying futures because of a substantial premium for nearby positions, amounting in some cases to 1c. to 1½c. Once more, a large London house was an eager seller, mostly of metal for future delivery. A development of unusual interest is the evident policy of consumers to buy nearby tin and ignore futures, thus creating a premium on the former position. This is pointed to as entirely contrary to the happenings a year ago when both positions were eagerly sought and the metal steadily advanced to high levels. It is stated that, if the former policy had been pursued recently, tin would have gone to 70c. instead of remaining fairly stable or declining as it has this year. Whether this policy is a concerted one, it is difficult of course to say definitely, but many indications point to the probability and reasonableness of it. After the heavy buying last week, the market yesterday was stagnant and has not been much better today. Spot Straits tin was quoted today at 61.75c., New York, a sharp decline from the prices both last week and the week before. London prices are also lower with spot standard quoted at £279 5s., future standard at £273 10s. and spot Straits at £280 5s. The Singapore price was £282. Arrivals thus far this month have been 4180 tons, with 6805 tons reported afloat.

Lead.—The only change in the situation is a slightly easier one, so far as prompt metal is concerned, with a moderate decline in the outside market. The quotation of the leading interest is still 9.25c., New York, as its contract price with every evidence of the company absorbing its usual amount of business. In the outside market quotations range from 9.10c. to 9.15c., St. Louis, or 9.25c. to 9.45c., New York.

Zinc.—After several weeks of decided firmness and fairly high prices with a scarcity of prompt metal the feature, weakness has developed and quotations are considerably lower. There are several causes for this, one of the main ones being the usual effect of London prices, but more particularly the realization that actual supplies are on the increase rather than otherwise. There has been a sharp decline in export demand and buying by domestic consumers has actually fallen off. While quotations are considerably lower than a week ago at 8.30c. to 8.35c., St. Louis, for prime Western for early delivery, or 8.65c. to 8.70c., New York, sentiment is pronounced that the reaction will be shortlived.

Nickel.—Wholesale lots of ingot nickel are quoted at 35c. with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Antimony.—The market is easier and Chinese metal for spot delivery is quoted at 23c., New York, duty paid, with February-March arrival at 22c.

Aluminum.—Virgin metal, 98 to 99 per cent pure is obtainable in the ingot form at 27c. per lb., delivered.

Old Metals.—The market is quiet. Dealers' selling prices, in cents per lb., are as follows:

Copper, heavy and crucible.....	13.50
Copper, heavy and wire.....	13.00
Copper, light and bottoms.....	11.75
Heavy machine composition.....	10.00
Brass, heavy.....	9.00
Brass, light.....	7.75
No. 1 red brass or composition turnings.....	9.25
No. 1 yellow rod brass turnings.....	9.25
Lead, heavy.....	8.50
Lead, tea.....	7.00
Zinc.....	5.75
Cast aluminum.....	21.50
Sheet aluminum.....	21.50

Chicago

JAN. 19.—Copper and tin are unchanged in a quiet market. Antimony has declined 1c. in an inactive market. Lead is somewhat weaker due to the influence of the foreign market and importation of the Mexican metal. A good supply and increased production are said to be the underlying causes of the weakening in zinc. Used metals are not in great demand and prices are unchanged. We quote, in carload lots: Lake copper, 14.25c.; tin, 63c.; lead, 9.15c.; zinc, 8.50c.; in less than carload lots, antimony, 25c. On old metals we quote copper wire, crucible shapes and copper clips, 11c.; copper bottoms, 9.25c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 8c.; zinc, 5.25c.; pewter, No. 1, 37c.; tin foil, 44c.; block tin, 52c.; all being dealers' buying prices for less than carload lots.

Non-Ferrous Rolled Products

No change has been made in the quotations on brass and copper rolled products since Dec. 16. Zinc and full lead sheets have not been changed in four weeks. For New York warehouse prices see page 260.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight Up to
75c. Per 100 Lb. Allowed on Shipments
of 500 Lb. or Over

Sheets	
High brass.....	19¼c.
Copper, hot rolled.....	22½c.
Zinc.....	12c.
Lead (full sheets).....	13c.
Seamless Tubes	
High brass.....	23¼c.
Copper.....	24½c.
Rods	
High brass.....	16¾c.
Naval brass.....	19¾c.
Wire	
Copper.....	16¼c.
High brass.....	19¾c.
Copper in Rolls.....	21¾c.
Brass in Rolls.....	27¼c.

PERSONAL

George S. Davison, who this week was inducted into the presidency of the American Society of Civil Engineers, has been active in an engineering way in so



GEORGE S. DAVISON

many directions that it is difficult to identify him exclusively as belonging to any one branch of engineering effort. He has built railroads, steam and electric, bridges, coking plants, coal handling plants, steel plants, water works, oil pipe lines and industrial centers. As president of the Allen S. Davison Co., owner and operator of the Sharpsville Furnace Co., with a blast furnace at Sharpsville, Pa., and of the Basic Products Co., producer of dolomite and lime, with a plant at Kenova, W. Va., he has a direct association with the iron and steel industry. He has been president, since Jan. 1, 1911,

of the Gulf Refining Co., Pittsburgh. These are but a few of the interests of Mr. Davison, who has had an unusually active career and still is engaged in many other things. He is vice-president Pennsylvania Water Works Co., Apollo Water Works Co. and Leechburg Water Works Co. He is a director of the West Penn Hospital, Pittsburgh, of the Pittsburgh Association for the Improvement of the Poor, of the Chamber of Commerce of Pittsburgh and the Pennsylvania Chamber of Commerce; secretary and a member of the engineering committee, Flood Commission of Pittsburgh. During American participation in the World War he was a member of the oil sub-committee of the National Council of Defense and later of the National Petroleum War Service Committee, which directed the production and distribution of petroleum. Mr. Davison was born in Pittsburgh, Sept. 21, 1856, and received his early education in the public schools of that city. He was graduated in 1878 from Rensselaer Polytechnic Institute, Troy, N. Y., of which he now is a trustee. He is a member of the Delta Phi fraternity.

Charles L. Larsen, Armour Institute of Technology, Chicago, has been elected president of the Chicago Foundrymen's Club for 1926. Other officers elected were George H. Rolinson, American Brake Shoe & Foundry Co., vice-president, and E. C. Barringer, *Daily Metal Trade*, secretary and treasurer.

A. L. Luria, president Luria Brothers & Co., New York, has been reelected on the board of directors of the Berks County Trust Co., Reading, Pa. Max Luria, treasurer of the company, has been reelected on the board of directors of the Farmers National Bank, Reading.

Fred J. Lindauer, who has been experimental engineer for Fairbanks, Morse & Co., Three Rivers, Mich., has been appointed sales engineer for that company and will be located at Baltimore.

Patrick Jordan, superintendent Athol Machine & Foundry Co., Athol, Mass., has resigned. He has made no plans for the immediate future.

H. G. Stalnaker, who has been engaged in the scrap business in Cleveland, under the name of the H. G. Stalnaker Co., retired from that business Jan. 15 and will devote his time to other interests. He has been actively connected with the scrap iron industry

in Cleveland and Pittsburgh for about 21 years. Prior to the organization of his own company two years ago he was affiliated with the Stalnaker Steel Co., Pittsburgh, being in charge of its Cleveland office.

Ralph H. Sherry has been appointed metallurgical engineer by the Biflex Products Co., Waukegan, Ill.

J. A. Buell has resigned as general superintendent of the Donner Steel Co., Buffalo.

T. Holland Nelson, consulting metallurgist for the Ludlum Steel Co., Watervliet, N. Y., addressed the Chicago Chapter of the American Society for Steel Treating, Jan. 14, comparing European and American practices in the manufacture of carbon and alloy steels.

Howard Edwards, treasurer Edwards Mfg. Co., Cincinnati, manufacturer of sheet metal specialties, has been elected a director of the Cincinnati Chamber of Commerce.

Gus H. Hilb, member of the firm of Hilb & Bauer, Cincinnati scrap iron dealers, has announced his retirement from business after 28 years' connection with the company. He will leave Jan. 24 for a two-months' pleasure trip to Florida and Cuba and on his return expects to devote considerable time to social service activities. The partners remaining in the firm are Emanuel Bauer, William N. Hilb and Leopold Wolf.

W. E. Bewley has resigned from the Dale Machinery Co., 549 West Washington Street, Chicago.

A. M. Branum, formerly sales engineer of concrete reinforcement and specialties for Joseph T. Ryerson & Son, is now associated with the Chicago office of Jones & Laughlin Steel Corporation, in special sales work.

Ernest Wooler has been appointed chief engineer Timken Roller Bearing Co., Canton, Ohio. For the past year Mr. Wooler held the position of automotive engineer. His present position puts him in full charge of all automotive, industrial, experimental and service engineering. An Englishman by birth, he has had experience in both American and European engineering and manufacturing practices. Mr. Wooler was graduated from the Manchester (England) Technical School. He served seven years' apprenticeship with Rolls-Royce, which covered all-around practical engineering, manufacturing, testing, etc., and he was assistant to Mr. Royce in building the first two-cylinder Rolls-Royce car in 1903. His later English connections were with Crossley and with Straker-Squire, Ltd., as designing engineer. In 1913 he became chief designer for the Continental Motors Co., Detroit. A number of the well-known Continental motors were designed and built under his supervision. He later became assistant chief engineer Chandler Motor Co. Upon the inception of the Cleveland Automobile Co. in 1919 he became chief engineer, having previously designed the Cleveland car.

J. W. Spray has been appointed manager of sales, automotive division, Timken Roller Bearing Co., Canton, Ohio. Mr. Spray first entered the employ of the Timken company in April, 1916, as automotive salesman.

E. W. Austin has been made assistant manager of sales, automotive division, Timken Roller Bearing Co., Canton, Ohio. He began work with the Timken company in 1919 as an automotive salesman and was promoted to district manager, with offices in Cleveland.

Edward W. Weiler has joined the staff of the Eureka Tool & Machine Co., 42 Walnut Street, Newark, N. J. Mr. Weiler was formerly development engineer with the General Electric Co., Harrison, N. J.

R. W. Ballentine has been made assistant manager of sales, automotive division, Timken Roller Bearing Co., Canton, Ohio. He joined the company in 1916 as automotive salesman and was advanced to district manager, with offices in Milwaukee.

Dr. Zay Jeffries, director of research at the Aluminum Co. of America, Cleveland, will present an illustrated paper before the Associated Technical Societies of Cleveland, Jan. 22, on "Engineering and Science in the Metal Industry."

Kent Harrison has resigned his position as open-hearth superintendent Donner Steel Co., Inc., Buffalo. He has made no announcement of plans. For the present he is at 186 Union Street, Hamburg, N. Y.

S. L. Nicholson has been elected acting vice-president Westinghouse Electric & Mfg. Co. He has been identified with the company since 1898. In 1909 he was made sales manager and held that position until 1917, when he was made assistant to the vice-president. Mr. Nicholson assisted in the formation of and was the first president of the American Association of Electric Motor Manufacturers, now the Electric Power Club, and he also assisted in the formation of the American Gear Manufacturers' Association and the Stoker Manufacturers' Association. He is a member of the Electrical Safety Conference, the American Statistical Association and the Bureau of Personnel Research for the Carnegie Institute of Technology.

George M. Muntz, president Tropenas Co., 25 Broadway, New York, is sailing for Brazil on Jan. 30 to visit the company's office in Rio de Janeiro and the company's new works in that city and in Sao Paulo.

Dr. R. B. Moore, formerly chief chemist of the United States Bureau of Mines, and now general manager of the Dorr Co., New York, who was largely responsible for the development of helium production during the war, was presented with the Perkin Medal for 1925 at the Chemists' Club, New York, on Jan. 15. The medal is given by the American Society for Chemical Industry, and the selection is made by a committee from that organization, the American Chemical Society, the American Institute of Chemical Engineers and the American section of the Société de Chimie Industrielle.

John Hist, formerly superintendent of the Cleveland Implement Mfg. Co., Alliance, Ohio, has been made general manager of the company. Mr. Hist will have his offices at 814 Engineers Building, Cleveland, and, in addition to following production, he will direct the sales of the company.

Elbert H. Gary, chairman United States Steel Corporation, and Edward J. Berwind, head of the Berwind-White Coal Mine Co., New York, have been elected to the board of directors of the United States Realty & Improvement Co., New York.

Carl L. Smith, formerly secretary and organizer National Safety Council, Chicago, has been appointed secretary-manager of the Cleveland Safety Council, succeeding Adam H. Lintz, who has resigned. Mr. Smith had charge of the welfare, safety and industrial relations departments of the Commonwealth Steel Co., St. Louis, for ten years, and later organized and was secretary-manager of the St. Louis Safety Council.

C. M. Daniels, until recently structural and plate sales agent in the Chicago office of the Bethlehem Steel Corporation, has been transferred to the Bethlehem office of that company as sales agent in charge of plate sales. Lee Hillard, formerly structural and plate sales agent in the St. Louis office, has been transferred to Chicago to fill the vacancy left by the promotion of Mr. Daniels.

Arthur W. F. Green has resigned as metallurgist for the John Illingworth Steel Co., Philadelphia, to become steel consultant with W. B. Coleman & Co., Mulford Building, Philadelphia, metallurgists, chemists and engineers.

H. P. Repetto, formerly sales manager Fremont Stove Co., Fremont, Ohio, has organized the Reps Heating Co., Clyde, Ohio, to manufacture gasoline stoves.

Howard U. Herrick, formerly vice-president and general manager V & O Press Co., Hudson, N. Y., has been elected president, succeeding William P. Jeffery, who has resigned, to devote his entire time to his legal profession. Previous to joining the V & O Press Co. two years ago, Mr. Herrick was works manager Brown-Lipe Gear Co., Syracuse, N. Y. In addition to his newly acquired duties he will continue as general manager. There is no other change in the organization. The following officers continue: Herman Osswald, vice president and consulting engineer; F. A. Beardsley, secretary-treasurer.

Frank H. Colladay has resigned his twelve years' connection with the Trumbull Steel Co., as manager of sales of the New York district office and is now making his headquarters at the Engineers Club, 32 West Fortieth Street, New York.

Arthur C. Pletz, secretary Morris Machine Tool Co., Cincinnati, has been nominated president of the Foreign Trade Association of the Cincinnati Chamber of Commerce.

Lewis I. Stewart, factory manager Janesville, Wis., division, Chevrolet Motors Co., has been transferred to the main works as supervisor of production, and is succeeded as factory manager by his former assistant, Ellery Wright.

E. G. Jones has been appointed general manager Milwaukee works, Inland Steel Co., formerly known as the Milwaukee Rolling Mills Co., manufacturer of galvanized and blue annealed sheets.

William H. Woodin has been made chairman of the board of directors and C. S. Sale, president, of the American Car & Foundry Motors Co., which recently was organized to take over control of the Hall-Scott Motor Car Co., and Fageol Motors Co. Col. E. J. Hall was made vice-president, together with Horace Hager, W. L. Stancliffe, G. R. Scanlan and F. R. Fageol.

Dr. Richard Moldenke sailed Saturday, Jan. 16, for Bergen, Norway, on the Stavangerfjord. The trip will also embrace England, France, Italy and Germany and late developments in foundry practice, synthetic ammonia and aluminum will be investigated.

OBITUARY

MAHLON S. KEMMERER, who died recently at Atlantic City, N. J., in his eighty-second year, for many years had owned the blast furnace of the Carbon Furnace Co., Parryville, Pa. In 1876 he engaged in the mining of coal at Harleigh, Pond Creek and other points in Pennsylvania and he later acquired an interest in the Connellsville Coke & Iron Co., the Carbon Iron & Pipe Co. and the Carbon Rolling Mill Co. He was secretary-treasurer of the Virginia Coal & Iron Co. and a director of the Alden Coal Co., Wilkes-Barre, Pa. Other business enterprises with which he was connected were largely coal and coke properties in Virginia and in the West. The mining town of Kemmerer, Wyo., was named after him.

FRANK F. VATER, president Power Plant Specialties Co., 440 South Dearborn Street, Chicago, manufacturer of water treating plants, was killed instantly near Milwaukee when the automobile in which he was riding collided with another car and was overturned. His son, Donald, and his daughter, Mrs. Fred Schmidt, Milwaukee, were uninjured.

LIEUT. FREDERICK G. KAHN, aged 25, son of Gustave Kahn, vice-president and general sales manager of the Truscon Steel Co., Youngstown, Ohio, was killed Jan. 14 when an airplane in which he was riding fell 1000 ft. into San Diego Bay, California. Lieutenant Kahn graduated in 1921 from the Annapolis Naval Academy

and at the time of his death was attached as aviator to the battleship West Virginia. The body was brought to Youngstown for interment.

R. A. STORM, manager of the structural department, Morgan Engineering Co., Alliance, Ohio, died of pneumonia on Jan. 2. He was born in Altoona, Pa., 43 years ago. Prior to 1901 Mr. Storm was connected with the Pittsburgh Steel Car Co. In 1901 he accepted a position with the Tennessee Coal, Iron & Railroad Co., Birmingham, as assistant superintendent of the structural department. While in Birmingham, in 1910, he married Miss Johnnie Randall of that city. In 1916 he became superintendent of the structural department, Morgan Engineering Co. When that company embarked in the rebuilding of locomotives, Mr. Storm was made manager of the boiler department and, afterwards, manager of the structural department. He was well known to the fabricating trade as an authority on electric arc welding of structural steel, having spoken before different organizations on this subject. His last address on electric welding was given before the American Institute of Steel Construction, at White Sulphur Springs, W. Va., in November.

LOUIS K. HIRSCH, a pioneer in the iron and steel business, died suddenly in Nice, France, on Jan. 9. He will be buried in St. Louis during the week of Jan. 26. Mr. Hirsch started in the iron and steel business in Chicago with offices in the Rookery Building 35 years ago, and retired from the iron and steel scrap and re-laying rail business about 15 years ago. He was succeeded in that business by his stepson, M. K. Frank, now located in the Park Row Building, New York.

WALTER J. WATSON, who was associated with the Watson-Stillman Co., New York, for 50 years, died suddenly at Plainfield, N. J., Jan. 7, at the age of 80 years. He entered the employment of the Watson-Stillman Co. in 1870, and in November, 1920, upon the completion of 50 years of service, was retired with a pension. Mr. Watson is survived by Mrs. Watson and two sons, George Watson and Walter Watson.

COMMODORE CHARLES A. GOULD, founder and former president of the Gould Coupler Co., Depew, N. Y., died of pneumonia Jan. 5 at his home in New York, aged 77 years. He perfected a storage battery and a car lighting system and at the time of his death was president and director of the Gould Storage Battery Co. and the Gould Realty Co., New York.

Albert Broden

ALBERT BRODEN, for many years a leading blast furnaceman in the Eastern iron trade, died at his home in Temple, Pa., Jan. 17, after an illness of nearly three years. Mr. Broden's name had been connected with the operations of the Reading Iron Co. and the Temple Iron Co. for nearly 30 years, or from 1887 to 1916. His prominence in the Eastern iron trade was due in part to his activities in the sale of Swedish iron ores for importation into the United States. He represented the Grangesberg Co., a producer of Swedish iron ore within the Arctic Circle, and was instrumental in bringing in many hundreds of thousand tons in the years 1908-1920. In recognition of his services in this connection, the King of Sweden in 1913 made him a knight of the Order of Vasa (founded 1722), first class, and in 1915 a knight of the Order of Pole Star (founded 1748). In each case he received the decoration from the Swedish minister at Washington.

Born April 22, 1851, at Skofde, Sweden, he was educated in Skara and in 1873 came to the United States. His first employment was at Birdsboro, Pa., and later he went to the Coleman furnaces at Lebanon. In 1880 he was employed by the government of Colombia in the operation of a furnace at Bogota. Then followed several years spent in Sweden. Returning to the United States, he entered the employ of the Reading Iron Works, now the Reading Iron Co., as superintendent of blast furnaces, continuing until 1914 when he resigned.

He was superintendent also of the furnace of the Temple Iron Co., Temple, Pa., until 1916, being also a director of the company. For a time he represented his company in the Eastern Pig Iron Association and for a year was president of the association.

Mr. Broden leaves his wife and a daughter. His brother, Josef Broden, is an official of the Swedish Government bank at Skofde.

Mechanical Refrigerator Castings

(Concluded from page 205)

time with iron containing a very low silicon content; for instance, stove plate was successfully made with iron containing 1.50 per cent silicon.

With the mixture used in the Gartland Haswell Rentschler plant, given above, sulphur can be kept under 0.07 per cent only by the use of low blast pressure and low coke charge. Sulphur in cast iron causes hardness and shrinkage. It causes the metal to run red short and be sluggish. Therefore, this element is to be avoided as much as possible.

Phosphorus imparts fluidity to the iron. Unfortunately, it also causes phosphorus segregations, and for this reason pressure castings must be made with iron of low phosphorus content. Regular Northern foundry iron is too high in phosphorus for this work; therefore malleable iron is used, being 0.20 per cent, and under, in this element.

Manganese has an attraction for sulphur, forming manganese sulphide, which is discharged from the cupola by the aid of limestone. When manganese exceeds 0.60 per cent, it tends to make the castings hard. On the other hand, when it is lower than 0.50 per cent, there is a tendency toward higher sulphur.

Carbon must be present in sufficient quantities to give the iron life, and it is by the aid of this element that we overcome the loss in fluidity caused by low phosphorus. The quantity of carbon in gray iron can be raised or lowered according to the height of coke in the bed, the blast pressure and volume. It is quite logical to assume that if molten iron trickles through 40 in. of coke it will absorb more carbon than if it trickles through but 20 in. of coke. We maintain a bed of coke 38 in. above the tuyères. If this height can be kept with a low blast pressure, our iron will always be fluid regardless of the phosphorus content.

Nickel and chromium aid in closing the grain of the metal. The latter is a hardener and, when present in large quantities, it will make the castings difficult to machine. These elements are present in Mayari pig iron, which is made from Cuban ores.

By the process outlined a metal is obtained which is almost twice as strong as the ordinary gray iron casting, and capable of conforming to the most rigid specifications.

The mixture used contains a very low percentage of phosphorus, which tends to make the iron sluggish unless the proper preventive measures are taken. This is overcome by using a very low blast pressure. The iron coming from the cupola closely resembles malleable iron in its degree of heat and the action of the sparks. The scum on the iron in the ladle clears itself.

The coke ratio is one to nine, which is considered high under the circumstances. The high ratio is attributed to the fact that a very small volume of air passes into the cupola. Air contains 21 parts of oxygen and 79 parts of nitrogen, and it necessarily follows that, if a large volume of air is used, larger quantities of oxygen are fed into the cupola and a greater amount of coke is necessary to absorb it. The use of a greater amount of coke will therefore increase the sulphur content in the iron. Low blast pressure and low volume therefore give us two very important advantages, namely, a high coke ratio and a low absorption of sulphur.

In summing up: the successful manufacture of these castings on a productive basis appears to depend primarily on two things: the low phosphorus in our mixture and the use of a very low blast pressure.

Heavy Domestic Buying in France

Mills Less Competitive for Export—British Prices Better—
Charleroi Strike Ending—German Cartels

(By Cable)

LONDON, ENGLAND, Jan. 18.

CLEVELAND pig iron is strong and active, especially for domestic consumption. Prices have advanced 6d. but makers are not inclined to increase output because of increasing fuel costs so that prompt supplies of foundry iron are scarce. Export inquiry is improving. Hematite is active with the available supply small and East Coast makers sold up to February and March, but prices are unchanged. Foreign ore is quiet.

Bilbao Rubio is quoted at 21s. 6d. c.i.f. Tees.

Finished steel demand is improving. India has purchased some fair tonnages of bars. The Buenos Aires & Pacific Railway recently distributed 44,000 tons of rails among British mills. Domestic demand for heavy steel is broadening. The December exports of pig iron totaled 40,581 tons, of which the United States took 11,309 tons. The total exports of iron and steel were 340,825 tons.

The tin plate market is quiet but prices are steady.

The pooling plan is not yet operative but makers are anticipating its early institution. Galvanized sheets are moderately active on small orders and prices are steady. Last year's exports of sheets set a high record of 713,084 tons. The Llanely Steel Co. is erecting a new sheet and galvanizing mill. Japanese buyers have closed on some small tonnages of light gage black sheets.

Continental iron and steel markets are moderately active, particularly with buying by British consumers. Semi-finished material is very scarce and makers are not inclined to sell for forward shipment. Merchant bars have sold at £5 8s. 6d. f.o.b. Antwerp. The Charleroi strike is believed likely to terminate soon, as workers are responding to the employers' offers and operations are being resumed. Most of the Belgian plants affected by the recent floods are now operating almost normally. Negotiations for the formation of the Ruhr Steel Trust are progressing and an investigating company with a capital of 50,000 reichsmarks has been formed. Taxation is still the principal obstacle.

BELGIAN MARKET FIRMER

Mills Well Booked Adopt Firmer Attitude—
Luxemburg Competition Keen

ANTWERP, BELGIUM, Dec. 20.—The Belgian steel market is firm with an increasing volume of orders in evidence, the better-booked works showing a decided tendency to hold firmly to quoted prices and conditions of delivery as a result of the decline of French competition in most lines. Rolling mills in the Liège district have extended their delivery terms on bars to three to five months.

The pig iron market is still encountering French competition and the price of No. 3 foundry declined during the past month from about 330 fr. to a mini-

mum of about 312 fr. per ton, continuing below the Luxemburg price, which dropped during the same period from about 333 fr. per ton to a low of about 321 fr. On semi-finished material, strong French competition has been encountered and prices are still slightly weak on billets, blooms and sheet bars.

During December the demand for various rolled products registered a decided increase both in the domestic market and for export to Japan. The greatest improvement was in the bar market with wire rods also stronger and in good demand. Prices on wire and wire products continued quite firm and unchanged throughout the month. The scrap market was weak, possibly the result of prohibition of all export of scrap effective Dec. 1. Luxemburg mills have been keen competitors for business.

On Nov. 1 of a total of 56 blast furnaces, 32 were

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.85 per £, as follows:

	£1	2s.	to £1	2½s.	\$5.33	to	\$5.45
Durham coke, del'd..	1	1½			5.21		
Bilbao Rubio oref...	1	1½			5.21		
Cleveland No. 1 fdy.	3	11½	and 3	12	17.33	and	17.45
Cleveland No. 3 fdy.	3	6			16.00		
Cleveland No. 4 fdy.	3	8	and 3	8½	16.49	and	16.61*
Cleveland No. 4 forge	3	7	and 3	7½	16.24	and	16.37*
Cleveland basic	3	9	and 3	9½	16.73	and	16.85
East Coast mixed....	3	17	to 3	17½	18.66	to	18.78
East Coast hematite.	4	19			24.00		
Ferromanganese	15	10			75.18		
*Ferromanganese	15	5			73.96		
Rails, 60 lb. and up..	7	10	to 8	0	36.37	to	38.80
Billets	6	0	to 7	10	29.10	to	36.37
Sheets and tin plate							
bars, Welsh	6	5			30.31		
Tin plates, base box..	0	19¼	to 0	19½	4.63	to	4.72
					C. per Lb.		
Ship plates	7	2½	to 7	12½	1.54	to	1.65
Boiler plates	11	0	to 11	10	2.56	to	2.67
Tees	7	7½	to 7	17½	1.59	to	1.69
Channels	6	12½	to 7	2½	1.43	to	1.54
Beams	6	7½	to 6	17½	1.38	to	1.48
Round bars, ¾ to 3 in.	7	17½	to 8	7½	1.67	to	1.81
Steel hoops	10	10	and 11	0*	2.37	and	2.35*
Black sheets, 24 gage	11	5	to 11	10	2.44	to	2.67
Black sheets, Japanese							
specifications	15	5			3.30		
Galv. sheets, 24 gage.	16	7½	to 16	15	3.55	to	3.61
Cold rolled steel strip,							
20 gage	18	0			3.90		

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron:(a)	£3	2½s.	to £3	5s.	\$15.15	to	\$15.76
Belgium	3	2½	to 3	5	15.15	to	15.76
France	3	2½	to 3	5	15.15	to	15.76
Luxemburg	3	2½	to 3	5	15.15	to	15.76
Basic pig iron:(a)	3	0	to 3	2½	14.55	to	15.15
Belgium	3	0	to 3	2½	14.55	to	15.15
France	3	0	to 3	2½	14.55	to	15.15
Luxemburg	3	0	to 3	2½	14.55	to	15.15
Coke	0	18			4.37		
Billets:							
Belgium (Nom.)	4	11			22.06		
France (Nom.)	4	11			22.06		
Merchant bars:							
Belgium	5	8	to 5	10	1.17	to	1.19
Luxemburg	5	8	to 5	10	1.17	to	1.19
France	5	8	to 5	10	1.17	to	1.19
Joists (beams):							
Belgium	5	0	to 5	2½	1.08	to	1.10
Luxemburg	5	0	to 5	2½	1.08	to	1.10
France	5	0	to 5	2½	1.08	to	1.10
Angles:							
Belgium	5	2	to 5	4	1.12	to	1.15
½-in. plates:							
Belgium	6	2½	to 6	5	1.34	to	1.35
Germany	6	2½	to 6	5	1.34	to	1.35
¾-in. ship plates:							
Belgium	5	10	to 5	12½	1.19	to	1.20
Luxemburg	5	10	to 5	12½	1.19	to	1.20
Sheets, heavy:							
Belgium	6	3	to 6	4	1.33	to	1.34
Germany	6	3	to 6	4	1.33	to	1.34

(a) Nominal.

in blast. The average furnace operation in 1924 was 46 and in 1913 was 54 furnaces. Export prices continue low as a result of the low depreciated franc. The following are for material, f.o.b. Antwerp, per metric ton:

Bars	£5 4s.	\$25.22
Wire rods	5 15	27.88
Rails	5 10	26.68
Billets	4 6	20.85

FRENCH CONSUMERS BUY

Heavy Buying for Stock and Higher Costs Maintain Prices—Mills Withdraw from Export

PARIS, FRANCE, Jan. 2.—Although most consumers and producers are occupied with inventory of stocks and the holidays are just over, the current of business has shown but little reduction in the past week and prices continue their upward movement. The recent agreement of the cabinet on a plan of financial reorganization caused an upward movement of the franc in foreign exchange, but further depression is generally predicted as a result of the political struggle expected. The continued upward movement of prices is attributed to the active demand from manufacturing consumers, dealers buying for stock, and the farmers, as well as increased current costs of production and the anticipation in some instances of still higher costs. The present peak of demand is not expected to last, however, in view of the fact that the greater part of present purchases are going into stock.

Activity in the export market is decreasing as many mills well booked with both domestic and export tonnages are withdrawing from the market temporarily and British consumers, active buyers last fall have not renewed their activity since the beginning of the holidays. Belgian and Luxemburg mills are also filling their books and show less interest in export business.

Pig Iron.—With foundries receiving a good volume of business, demand for foundry iron continues heavy, and to meet this improved condition the association of producers of phosphoric pig iron has increased the authorized production of its membership by 60,000 tons for the first quarter; 15,000 tons for disposal in January and 45,000 tons for February and March delivery. The price on this added quota is advanced to 395 fr. for domestic consumers. This makes a total tonnage of 55,000 tons available for January, 40,000 tons of which will be sold at 367 fr. per metric ton, base. A slight modification has been made in price reductions for large orders, as follows: From 3 to 5 fr. per ton reduction in the concession on lots of 100 to 199 tons; 5 to 10 fr. per ton reduction in the concession on 200 to 499 tons; 500 to 999 tons unchanged at 10 fr. reduction in price; more than 999 tons unchanged at 12 fr. per ton concession. The competition of French furnaces for export business in pig iron has declined somewhat and No. 3 foundry, P. L., is generally quoted at 325 fr. (\$14.72) Belgian, f.o.b. Antwerp, with 320 fr. per metric ton (\$14.50) still obtainable on desirable orders. Very little hematite iron is available, practically the entire January production being sold.

Semi-Finished Material.—Those producers still in the market for small tonnages are quoting extended delivery and show no inclination to shade original quotations, although there is a considerable variation in prices, depending upon the extent to which a mill is filled with desirable business. Open-hearth steel when obtainable is quoted at 625 to 640 fr. per metric ton (\$23.63 to \$24.19) for blooms and 635 to 660 fr. (\$24 to \$24.95) for billets. Export demand continues fairly active and mills have adopted a more independent attitude toward foreign buyers. Sizable British inquiries are in the market and with both French and Belgian mills quoting high prices, Luxemburg makers are taking business at advances in the recent market. Recent export quotations have ranged from £4 2s. 6d. to £4 3s. per metric ton (\$20 to \$20.12), f.o.b. Antwerp, on Bessemer blooms, and £4 7s. 6d. to £4 8s. per metric ton (\$21.22 to \$21.33) on Bessemer billets.

Finished Material.—There is practically no available

tonnage for prompt shipment and prices are still advancing. In the domestic market the lowest quotation apparently obtainable on a desirable order is 650 to 660 fr. (\$24.57 to \$24.95) per metric ton for Bessemer grade. In the export market bars are firmer and most Lorraine producers have withdrawn from the market. Average prices are: beams, £4 17s. to £4 18s. per metric ton (\$23.51 to \$23.75), f.o.b. Antwerp, and bars, £5 6s. 6d. per metric ton (\$25.82), f.o.b. Antwerp.

Sheets.—There has been a slight improvement in domestic demand, particularly for the lighter gages. Mills are booked with orders for about six weeks on heavy, two months on medium gage and three months on the light gages. Light gage sheets to domestic consumers range from 1100 to 1120 fr. per metric ton (\$41.58 to \$42.34). Export buying has been light and prices continue weak with medium gage sheets quoted at £5 17s. to £5 17s. 6d. per metric ton (\$28.36 to \$28.48).

Wire Rods.—Domestic demand for wire rods continues heavy and prices are advancing, the market today ranging from 680 to 710 fr. per metric ton (\$25.70 to \$26.84). Export sales are lighter, but it is noteworthy that most French mills have withdrawn from the market. Wire rods for export are generally quoted at about £5 15s. per metric ton (\$27.88), f.o.b. Antwerp.

GERMAN CARTELS INCREASE

Number Placed at 2000—Part of Effort to Regain Export Trade, Says Commerce Report

WASHINGTON, Jan. 19.—Pointing out that the total present cartel or trust organization census in Germany is estimated at 2000 combinations, Richard Eldridge, European Division, Department of Commerce, in a report on the subject says that an outstanding example of Germany's efforts to regain domestic and export sales control is the "cartelization" of the German iron and steel industry. The Raw Steel Cartel was formed in November, 1924, he says, and regulation of output, but not of prices, was originally stipulated.

Explaining the development of this organization, Mr. Eldridge says in part:

On July 16, 1925, however, an agreement was made with the manufacturers' associations subsidiary to the Reichsverband der Deutschen Industrie, providing that a sales bureau of the Raw Steel Cartel, in accord with these associations, should fix domestic and export prices on iron and steel products. The differential between export prices and domestic list has varied from 5 per cent on pig iron to 40 per cent on fine sheets. Firms in the manufacturers' associations also receive a rebate of 5 to 40 per cent on raw materials used for export sales.

This agreement affected enterprises in the Locomotive, Boiler and Rolling Stock Producers' Association, the members of the Iron and Steel Ware Union, the Union of Sheet Iron and Tin Plate Producers, the Union of German Machinery Constructors, and the German Association of Metal Ware Industries. Notwithstanding that lack of adequate producers' associations hindered the conclusion of further agreements with other manufacturing branches, the present organization of the iron and steel industry makes it possible for the great basic groups to fix a high domestic price level so high as to facilitate export dumping to strengthen their position in highly competitive foreign markets.

At the same time, through the system of rebates to transformers on raw materials for products destined for export, finishing industries are helped to bring their production costs on export articles down to a point where quoting at or below the world market level at least entails no loss. Similar arrangements toward lowering production costs on export articles are being adopted in the German aluminum industry.

Immigration in November, 1925, totaled 26,642, and for the five months ended with November, amounted to 123,059. Of the November total 124 immigrants were listed as iron and steel workers, 149 as machinists, and 49 as metal workers, other than iron, steel and tin. For the five months the iron and steel workers' immigration list was 548; machinists, 804; and metal workers, 182.

Cast Iron Pipe Output Large

Production Comparable to 1924—Sales of Foreign
Pipe Less Than 5 Per Cent of Total

DESPITE apprehensiveness of many American cast iron pipe makers that 1925 would prove a year of curtailed sales and output as a result of competition from European pressure pipe, the estimated production for the twelve months of close to 1,350,000 tons places it among the industry's best years. This estimate is comparable to corrected figures for 1924 of 1,365,272 net tons and 1,134,059 tons in 1923. From the viewpoint of actual consumption of pipe, the past year may have been a record one, for to the domestic production may be added imports of French, German and Belgian pipe of 44,045 tons to Dec. 1, compared with 46,900 tons for 1924. A favorable factor in an estimate of the past year is the large tonnage of business carried over into 1926, set by most makers as greater than the carryover into 1925.

From the first few weeks in January until well into December the year was marked with large scale activity by both gas and water pipe users. By the end of January inquiries for water pipe have appeared from such large cities as Chicago, San Francisco, St. Paul, Milwaukee, Boston, Buffalo and, in Ohio, Akron and Toledo, and numerous small tonnages of pipe were under quotation to municipalities in New England and on the Pacific Coast. Among the large cities, Detroit and New York were outstanding purchasers of the year, Detroit closing on a total of about 56,000 tons while New York took about half this tonnage.

Competition from the Société Anonyme des Hauts Fourneaux et Fonderies de Pont-a-Mousson, a French maker represented by B. Nicholl & Co., New York, was keen from the beginning of the year and was a particularly prominent feature of the several purchases by Detroit. While a small tonnage of Belgian and a few lots of German pipe were imported during the year, the French maker was the foremost among foreign sellers. An estimate of the effect of this competition on the American market would probably show two notable results; first, prices, particularly in the New England district, were held at a lower level than would have been the case in a year of such active demand; second, American makers lost some of the large sized pipe business that contributes to heavy and profitable tonnage.

The first public letting on which a German seller appeared as a prominent competitor was a purchase by New York. The Gelsenkirchener Bergwerks A. G., Dusseldorf, Germany, was low on two of the New York inquiries, but foreign bids were rejected in each instance and award made to domestic foundries. In Detroit, however, 3000 tons of a total purchase of 12,400 tons went to the Pont-a-Mousson works and of a 17,000 ton purchase toward the end of the year, 4000 tons went to the French maker.

Another feature of the Detroit purchases this year was the large percentage of De Lavaud centrifugal pipe accepted. In this connection, it is perhaps noteworthy that larger scale production of pipe by the Sand-Spun Pipe Corporation at the plant of the American Cast Iron Pipe & Foundry Co., in Birmingham, promises to bring mechanically cast pipe into even greater prominence in 1926.

Where foreign bids were submitted on municipal inquiries there was an evident reluctance to purchase from a foreign maker, and in many instances such bids, although lowest, were rejected on various technicalities. In a few instances, however, foreign pipe was purchased in sizable quantities. Oneida, N. Y. closed on about 14,000 tons with the Pont-a-Mousson works and later in the year Greenville, S. C., took 9000 of a 15,000 ton purchase from the French maker.

Despite the large demand throughout the country for all sizes of pressure pipe, prices were notably unstable from the beginning, particularly when foreign competition was encountered or expected. Although

the Birmingham base was close to \$40 per ton during most of the year, competition brought out cuts by American makers to \$37 and 38 per ton, base Birmingham, and in one instance, the purchase of a small tonnage by Spartanburg, S. C., the Birmingham base price was cut to about \$35 per ton. However, later in the year, when American makers had become less apprehensive of the foreign product, prices showed slightly greater firmness, except on occasional desirable lots.

In the final quarter of the year, private buying of gas pipe assumed large proportions, tonnages taken ranging from 3000 to 4000 tons to as much as 25,000 tons to a single purchaser. In this field also, competition from the foreign product was felt and a fair tonnage was taken by the French maker.

Imports of cast iron pipe for 1924 and 11 months of 1925 by countries of shipment and United States customs districts through which it arrived.

Cast Iron Pipe From:	1925* Gross Tons	1924 Gross Tons
Belgium	5,956	22,674
France	36,198	22,701
United Kingdom	90	1,300
Canada	1,711	42
Cuba .....	.....	9
Germany .....	.....	166
Netherlands	9	8
Switzerland	81	.....
Total	44,045	46,900

*Jan. 1 to Nov. 30.

Cast Iron Pipe Imported through:	1925* Gross Tons	1924 Gross Tons
Los Angeles	9,926	26,076
San Francisco	2,228	2,039
Porto Rico .....	.....	13,748
New York	18,894	3,006
Washington	656	459
Philadelphia	68	146
Maine and New Hampshire	2	1,100
Massachusetts	5,276	144
Ohio .....	.....	10
Buffalo .....	.....	3
Sabine .....	.....	161
St. Louis .....	.....	8
Vermont	1,482	.....
St. Lawrence	1,979	.....
Maryland	198	.....
Michigan	3,200	.....
Oregon	135	.....
Chicago	1	.....
Total	44,045	46,900

*Jan. 1 to Nov. 30.

Examiner Upholds Rates on Oil Well Steel

WASHINGTON, Jan. 19.—Passing upon a complaint of the Marion Machine Foundry & Supply Co., manufacturer of oil well equipment, Marion, Ind., Attorney-Examiner William A. Disque of the Interstate Commerce Commission, has issued a tentative report holding that rates on iron and steel pull and sucker rods from Marion to points in Oklahoma and Texas are not unjust and unreasonable. He recommended dismissal of the case. The complainant had contended that the rates on these products should not exceed the rates on the general run of iron and steel articles, and particularly structural iron and steel.

The rates attacked were compared with present rates from Marion of 83c. per 100 lb. to Oklahoma points and 84c. per 100 lb. to Texas points, on various iron and steel articles, such as rods, bolts, turn buckles, rough castings and forgings, plain shafting and structural shapes, and with rates of 74.5c. to Oklahoma points, and 69c. to Texas points on wrought iron and steel pipe. The examiner said that the present rates on pull and sucker rods are built on the bar iron and steel rates approved in the iron and steel cases. He pointed out that they are only 9.5c. above the rate of 83c. on bar iron and steel, said by the railroads to be influenced by the water-compelled rates to Texas.

Machinery Markets and News of the Works

JANUARY BUSINESS SLOW

Machine Tool Buying Not Up to Volume of November and December

Inquiries Are Numerous, However, and Trade Looks for Larger Orders in Coming Months

IN the 15 business days of January machine tool buying has not been up to the November-December record, but inquiries are numerous and the trade looks for a continuation of the good business of the last quarter of 1925.

During the annual automobile show period the automobile companies are presumably intent on gaging what the demand for cars may be this year, and consequently are proceeding with moderation in plans for new equipment. Reports from the New York show held last week indicate a large volume of car buying.

Railroads are buying a few tools and inquiry from that source is fairly good. The Illinois Central is expected to buy soon its machine tool requirements for its Paducah, Ky., shops.

Many of the machine tool building plants are operating at a fairly high rate, but the situation with respect to deliveries is somewhat easier due to the letting up in buying over the year-end period.

New York

NEW YORK, Jan. 19.

MACHINE tool buying in the 15 business days of January has not shown the average volume of the last two months of 1925. Inquiries are plentiful, however, and expectations of the trade continue high as to the amount of buying that will be done in the next month or two. The New York Central has bought two 48-in. carwheel borers from the Niles-Bement-Pond Co. The International Motor Co. has bought a special centering machine for its plant at Allentown, Pa.

The Sweet & Doyle Foundry & Machine Co., whose plant is located on Green Island in the Hudson River near Troy, N. Y., has plans for a new machine shop, 30 x 250 ft. Work will begin as soon as the weather will permit.

The Caise Electrical Hot-Water Heater Co. has been incorporated in Wilmington, Del., with a capital of \$100,000 to manufacture hot-water heating equipment. Charles Caise, head of the company, room 40, 130 Flatbush Avenue, Brooklyn, is arranging for manufacturing by contract a form of heating device for dwellings which will utilize electric current for heating water under thermostatic control, and will circulate this water through radiators in the building. It is planned to establish eventually a factory and manufacture the equipment, instead of having it done outside. The market to be cultivated will be building contractors.

The Electric Novelty Co., Jersey City, N. J., has been incorporated and is manufacturing an electric cigar lighter. Leo Taussig is head of the company.

The Shere Metal Products Corporation, 329 Fifth Avenue, New York, manufacturer of high pressure lubricating systems, guns and machinery, has changed its name to the Adams Grease Gun Corporation. The capital stock of the company will soon be increased to provide additional funds for expansion. The company will continue to do its own manufacturing and is in the market for 2 1/4-in. O. D. cold drawn seamless steel tubing, No. 16 Stubs gage, and 1/2-in. O. D. cold drawn seamless steel tubing, No. 15 Stubs gage; also certain parts drop forged of chrome nickel steel and die castings of zinc alloys and brass castings. The Adams

Grease Gun Corporation manufactures a hydraulic high-pressure lubricating device for automobiles, trucks, tractors, industrial machinery, etc. Daniel G. Adams is president.

F. De Bellegarde, Inc., 1939 Boulevard, Astoria, L. I., is considering rebuilding the main two-story shop, 200 x 700 ft., at its stone and marble works, destroyed by fire Jan. 10 with loss reported at \$250,000 including cutting, polishing, hoisting and other machinery. The same fire also caused a loss of close to \$100,000 to the coal pockets and distributing plant of the Tisdale Lumber Co., on neighboring site, and which is likewise slated for rebuilding.

The American Sugar Refining Co., 117 Wall Street, New York, has awarded a general contract without competition to Stone & Webster, Inc., 147 Milk Street, Boston, engineer and contractor, for the proposed addition to its sugar refinery at Kent Avenue and South Fifth Street, Brooklyn, including remodeling of present plant, power house and additional machinery, estimated to cost \$5,000,000.

The American Foundry Equipment Co., 366 Madison Avenue, New York, has been organized to take over and expand the company of the same name which recently arranged for a main plant at Mishawaka, Ind., for increased production. The new company is capitalized at \$180,000.

M. K. Frank, 15 Park Row, New York, iron and steel merchant, has been making inquiries for a 100-hp. electric hoist, with drum capable of carrying about 3000 ft. of 1-in. wire cable, Lidgerwood type preferred.

The Warren Service Corporation, 229 West Sixty-fourth Street, has plans for extensions and improvements in its five-story automobile service, repair and garage building, 100 x 100 ft., at 236-40 West Sixty-fifth Street, to cost \$160,000. Parker & Shaffer, 280 Madison Avenue, are architects. Charles B. Warren is president.

The Edwards Electric Signalling Device Corporation, Exterior Street, near 140th Street, has awarded a general contract to the Barney Ahlers Construction Corporation, 110 West Fortieth Street, for a two-story addition, 50 x 100 ft., to cost \$50,000.

Fire, Jan. 12, destroyed a three-story wood-working shop, with pattern shop and other structures at the plant of the Todd Shipyards Corporation, Twenty-third Street, Brooklyn. An official estimate of loss has not been announced. Headquarters are at 25 Broadway, New York.

The Quality Art Novelty Co., 18 West Eighteenth Street, New York, is said to be planning to purchase a surface grinder with automatic feed.

The Brillo Mfg. Co., Pearl and Tillary Streets, Brooklyn, manufacturer of steel wool, etc., has disposed of a stock issue to total \$631,930, a portion of the proceeds to be used for plant expansion and installation of additional equipment. Work is in progress. M. B. Loeb is president.

The Hobart Mfg. Co., Inc., 24 East Twenty-first Street, New York, manufacturer of meat choppers, etc., with main plant at Troy, Ohio, has leased a portion of the building at William Avenue and Thirteenth Street, Long Island City, for an Eastern branch.

The Board of Education, Sea Cliff, L. I., is said to be planning the installation of manual training equipment in its proposed new school, estimated to cost \$225,000, for which plans are being drawn by Coffin & Coffin, 522 Fifth Avenue, New York, architects and engineers.

Mack Trucks, Inc., 25 Broadway, New York, manufacturer of motor trucks and parts, has arranged for an additional stock issue of \$10,000,000, a portion of the fund to be used for a 1926 expansion program. The company recently acquired the plant of the Niles-Bement-Pond Co. at Plainfield, N. J., totaling about 320,000 sq. ft. of floor space, and will remove its general service department, heretofore at New Brunswick, N. J., to this location and install additional equipment. Plans have also been drawn for a new assembly building at St. Paul, Minn., to cost \$500,000 with equipment, on which work will begin early in the spring. A. J. Brosseau is president.

The R. E. Thompson Co., 66 York Street, Jersey City, N. J., manufacturer of radio equipment, has acquired the plant of the Electric Auto-Light Co., Toledo, Ohio, at Poughkeepsie, N. Y., at one time the works of the Flat Automobile Co. The new owner plans to equip the structure for a new plant.

The Crane Market

THE revival of inquiry for overhead cranes that was expected soon after the turn of the year has not yet materialized, but a number of inquiries current for several weeks are giving a semblance of activity. The list of cranes and hoists from Lockwood, Greene & Co., New York, for a large rayon plant in Tennessee is expected to close shortly. It includes a 5-ton electric crane for a power plant, five 5-ton electric cranes for the finishing department, eight electric hoists and a small quantity of overhead track. The Phoenix Utility Co., 71 Broadway, New York, is reported to have closed on its 100-ton power house crane for Florida and is still in the market for a 60-ton overhead crane for domestic installation and a 35-ton crane for Ecuador. In addition to these lists a number of inquiries for single pieces of equipment are reported about to close.

Among recent purchases are:

Castanea Paper Co., New York, a 25-ton, 65-ft. span electric crane from the Whiting Corporation.

Phoenix Utility Co., 71 Broadway, New York, a 100-ton power house crane from an Eastern builder.

The Atlas Fence Co., 1 Clinton Street, Newark, N. J., manufacturer of iron and wire fences, has filed plans for a one-story addition to cost \$21,000. Fred A. Phelps, 21 Fulton Street, is architect.

The Weyerhaeuser Timber Co., 226 Broadway, New York, with main plant at Tacoma, Wash., has leased 30 acres at Port Newark, Newark, N. J., and plans the early erection of a new lumber terminal, with storage, conveying, hoisting and other mechanical facilities. It will cost about \$500,000 with equipment.

The Simmons Co., 110 East Forty-second Street, New York, manufacturer of brass, iron and other metal bedsteads, etc., with main plant at Kenosha, Wis., has awarded a general contract to the J. W. Ferguson Co., Paterson, N. J., for an addition to its branch plant at Elizabeth, N. J., including alterations in present building, estimated to cost \$25,000.

The City Commission, City Hall, Bayonne, N. J., has plans for a one-story municipal automobile service, repair and garage building, 175 x 200 ft., to cost about \$95,000 with equipment. Louis Quien, Jr., 229 Broad Street, Elizabeth, N. J., is architect.

The Gold Seal Laundry Co., 962 Franklin Avenue, Brooklyn, has plans under way for a one-story power house, to cost close to \$100,000 with equipment. Shampian & Shampian, 188 Montague Street, are architects.

The Hoboken Box Co., 720 Adams Street, Hoboken, N. J., manufacturer of wooden boxes, is considering rebuilding the portion of its plant destroyed by fire Jan. 13, with loss reported at \$40,000, including equipment.

The Ramapo Ajax Corporation, 30 Church Street, New York, is reported to have concluded negotiations for the purchase of the buildings and machinery formerly the plant of the Pardee Steel Corporation, Perth Amboy, N. J., and will dismantle at an early date. It is expected that about six months will be required to clear the site.

The Carr Chain Works, Inc., Troy, N. Y., has been incorporated with \$100,000 worth of preferred stock and 3000 shares of common stock of no par value, and has taken over the plant of the J. B. Carr-Woodhouse Co., which was sold by court order Nov. 6, 1925. The Carr Chain Works will manufacture both hand and machine made chains from 3/16 to 4-in. stock diameter. C. W. Tillinghast Barker of J. M. Warren & Co. is president; Edward C. Doyle of the Sweet & Doyle Foundry & Machine Co., Troy, is treasurer, and David B. Plum of the Troy Record Co., Troy, is secretary. John H. Woodhouse, who is vice-president and general manager, has been active in the manufacture of hand and machine-made chains for years. Together with the above-named officers, the following are members of the board of directors: James W. Fleming, Charles H. Stone and H. Judd Ward, all of Troy.

L. Koven & Brother, 154 Ogden Avenue, Jersey City, N. J., manufacturers of boilers, tanks and other plate products, plan to rebuild the portion of their power house destroyed by fire, caused by an explosion, Jan. 7. An official estimate of loss has not been announced.

The Westchester Electric Light & Power Co., South Broadway, Yonkers, N. Y., is having plans drawn for a new automatic power substation at Tuckahoe, N. Y., to cost \$200,000 with equipment. W. C. Fisher is company engineer.

The Michal Chemical Equipment Corporation has been organized by J. A. Michal, consulting engineer, 14 West

Missouri-Portland Cement Co., St. Louis, a 25-ton crawl-tread locomotive crane from the American Hoist & Derrick Co.

Clearwater Timber Co., Lewiston, Idaho, a crawl-tread locomotive crane with steam shovel attachment from the American Hoist & Derrick Co.

Kenna Terminal Co., Newark, N. J., two used 10-ton, 40-ft. boom McMyler crawl-tread locomotive cranes from Philip T. King, New York.

Salvatore & Musetti, Kent, Conn., a used 10-ton, 45-ft. boom, McMyler crawl-tread locomotive crane from Philip T. King, New York.

Missouri-Pacific Railroad, a 15-ton, 105-ft. span double gantry crane for Sedalia, Mo., from the Shaw Electric Crane Co.

New York, New Haven & Hartford Railroad, New Haven, Conn., a 30-ton and 20-ton overhead cranes for the Van Ness shops, from the Niles-Bement-Pond Co.

Twenty-Third Street, New York, but the project has not yet developed to a point where the company is in position to make definite announcement regarding its manufacturing plans.

The Portable Light Co., 110 East Forty-second Street, New York, has been organized to manufacture electric search lights for automobile, marine and other use, and portable storage battery search light outfits for police and fire departments, utility companies and industrial plants. The company has been operated as a partnership for the past three years.

New England

BOSTON, Jan. 18.

MACHINE tool business is more active than in several months, although not brisk. Most of the sales the past week were in single machines, but were in fair volume, with upright drills the most active. The largest purchase of new tools was by an eastern Massachusetts manufacturer involving two 4-ft. and one 10-ft. radial drills. Another eastern Massachusetts company bought used equipment consisting of one milling machine, two lathes, a shaper, planer, two grinders and a two-spindle drill. Machinery dealers are still working on a large number of active accounts and prospective buyers are personally inspecting equipment. Small tools and machinery parts are more active than is usual in January. Many prospective buyers desire to purchase equipment on time, as this practice is becoming more common.

Deliveries on new milling machines, planers, lathes and several other tools are becoming more extended. It is the opinion among dealers that prices are more likely to advance than to decline.

Plans are in progress for a two-story and basement, 50 x 135 ft. service plant on Hartwell Street for the Fall River Electric Co., Fall River, Mass. Roy F. Whitney is treasurer. E. J. Marvell, 209 Bedford Street, Fall River, is the engineer.

Lockwood, Greene & Co., Inc., 24 Federal Street, Boston, engineers, is preparing plans for a four-story printing plant to cost \$200,000 for the Case, Lockwood & Brainard Co., 141 Pearl Street, Boston, for which motors and miscellaneous equipment are required.

The plant of the Orange Welding Co., West Haven, Conn., was destroyed by fire last week, the loss being estimated at \$25,000. It plans to secure new quarters and equipment at an early date.

The Alco Mfg. Co., Lawrence, Mass., has been incorporated with a capital of \$200,000 to manufacture window latches and other hardware specialties.

The General Alloys Co., 405 West First Street, Boston, has taken out a permit to build a one-story foundry.

The Voos Co., Porter Street, New Haven, Conn., manufacturer of shears and other cutlery, has plans for a two-story addition, 35 x 44 ft. Dwight Smith, New Haven, is architect.

The Gillette Safety Razor Co., West First Street, Boston, has preliminary plans for a one-story steam power house to cost \$50,000 with equipment. It has awarded all sub-contracts for the completion of its new blade manufacturing addition, in course of erection, to cost \$500,000 with machinery. Charles T. Main, 200 Devonshire Street, is architect for both structures.

New interests, headed by Edwin F. Putnam, New Britain, Conn., district manager for the Connecticut Light & Power Co., have acquired a controlling interest in the Greenwich Water & Gas Co., Greenwich, Conn. Plans are under way for extensions and improvements in the present plant, including the installation of additional equipment. The company has arranged for a note issue of \$750,000, a portion of the fund to be used for the expansion. Mr. Putnam will be president.

The New Hampshire Match Co., East Jaffrey, N. H., is completing plans for improvements and extensions, to include the installation of humidifying and other equipment. It recently increased its capital by an amount of \$100,000.

The Mack Motor Truck Co., 195 Massachusetts Avenue, Boston, has plans for a new service, repair and garage building at Worcester, Mass., to cost approximately \$110,000 with equipment. The Warren Engineering Co., Charleston, Boston, is architect and engineer.

The Wright & Corson Mfg. Co., Charlotte Street, Bridgeport, Conn., manufacturer of rivets, machine screws, etc., has begun work on an addition, 60 x 20 ft., for which a general contract recently was let to George H. MacKenzie.

The United States Fastener Co., Boston, has been formed under State laws to take over and expand the company of the same name with plant at 1230 Columbia Road, manufacturer of metal fasteners, etc. The new organization is capitalized at \$1,000,000, and is headed by Sinclair Weeks and Joseph R. Watkins.

S. S. Eisenberg, 46 Cornhill Street, Boston, architect, has plans for a three-story automobile service, repair and garage building, 110 x 140 ft., at Worcester, Mass., to cost \$150,000 with equipment.

In connection with the rebuilding of its plant recently damaged by fire, the Capitol Knife Co., Willow Street, Winsted, Conn., will take over the entire building and expand its works. The structure has been occupied in part heretofore by the Universal Bronze Bearing Co., which is understood to be arranging for works in another part of the city.

Parker Brothers, Inc., Bridge Street, Salem, Mass., manufacturer of toys, etc., has foundations under way for a one-story addition, 90 x 200 ft., for which a general contract recently was awarded to the H. K. Ferguson Co.

The Stanley Works, Inc., New Britain, Conn., manufacturer of hardware, etc., has filed plans for its one-story addition, 111 x 238 ft., to cost \$80,000. It is understood that another structure will be built closely following.

The First National Stores, Inc., Boston, recently formed by a merger of M. O'Keeffe, Inc., 384 Rutherford Street; John T. O'Connor Co., and the Ginter Co., both of Boston, wholesale grocers and bakers, has acquired 12 acres at Somerville, Mass., and plans the erection of a central storage and distributing plant. It will include a baking plant, with ovens, conveying machinery, etc.; cold storage and refrigerating plant, milk-handling station, power house, etc., to cost approximately \$2,000,000 with equipment. Michael O'Keeffe is president.

The du Pont Viscoloid Co., Inc., Leominster, Mass., operated by E. I. du Pont de Nemours & Co., manufacturers of rods, tubes, sheets, etc., has acquired the Pacific Novelty Co., 41 East Eleventh Street, New York, for \$1,000,000 and will consolidate with its organization. Increased operations are planned. Bernard W. Doyle is vice-president.

The Rhode Island Braiding Machine Co. has been organized in Providence, R. I., to take over the braiding manufacturing business of the old Rhode Island Braiding Machine Co. This transaction was made in view of the fact that the old company, representing the personnel and physical assets for producing braiding machinery and the good will of the company, which was established in 1865, had been transferred to Philadelphia and is being operated by the Fidelity Machine Co., 3908 Frankford Avenue. H. W. Anderson, who is president of the Fidelity Machine Co., is also president of the Rhode Island Braiding Machine Co. G. I. Davenport is treasurer of both companies. The sales and manufacturing organization of the Fidelity Machine Co. will handle the production and distribution of braiders in addition to the business already existing.

The Donle Electrical Products Corporation, Meriden, Conn., has been organized with capital of \$50,000 to manufacture and deal in electrical specialties. William H. Bristol is president.

Kelso Radio, Inc., 58 Market Street, Trenton, N. J., has been incorporated with capital stock of \$50,000 to manufacture wireless instruments and equipment. Herbert B. Frost, and J. Russell Kelso, Sr. and Jr., Trenton, are the incorporators. Manufacturing will be done in the plant of the Kelso Mfg. Co., Trenton, maker of brake lining and clutch facings.

Philadelphia

PHILADELPHIA, Jan. 18.

FOLLOWING the approval of the Public Service Commission of Maryland for the construction of the proposed hydroelectric generating plant at Conewingo, Md., the Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, is arranging to finance the project, estimated to cost \$52,000,000. It will be carried out by the Susquehanna Power Co. and the Susquehanna Electric Co., affiliated organizations, and an initial fund of about \$20,000,000 will be provided for the work. The power dam will be built on the Susquehanna River, on the State line between Pennsylvania and Maryland, and power station constructed with initial installation of seven 43,000-kw. generators and accessories. A steel tower transmission line will be built to Philadelphia. Contract for engineering and construction has been given to Stone & Webster, Inc., 147 Milk Street, Boston. The award for power dam construction has been sublet to the Arundel Corporation, Pratt Street, Baltimore.

The Philadelphia Rubber Works, Inc., Land Title Building, Philadelphia, has awarded a general contract to the William Steele & Son Co., 219 North Broad Street, for its proposed plant at Oaks, Pa., consisting of a group of 14 buildings, with power house, estimated to cost \$400,000 with machinery. It is expected to be completed in June. A 400-ft. crane runway will be installed. The Osborn Engineering Co., East Seventy-first Street, Cleveland, is engineer.

The Uhr Electrical Supply Co., 19 North Seventh Street, Philadelphia, will soon take bids on revised plans for a four-story and basement addition to its storage and distributing plant at 622 Arch Street, including improvements in the present building, reported to cost \$65,000. Richard R. Neely, 2301 Spruce Street, is architect.

The Haines, Jones & Cadbury Co., 1136 Ridge Avenue, Philadelphia, manufacturer of plumbing equipment and supplies, is said to have closed negotiations for the purchase of the former plant of the Ace Motorcycle Works, Erie Avenue and Sepviva Street, comprising 7 acres with buildings totaling 152,000 sq. ft., for \$425,000, to be used as a new plant.

The Keasby & Mattison Co., Ambler, Pa., manufacturer of industrial asbestos products, has acquired through its president, Dr. Richard V. Mattison, the former plant of the Nelson Valve Co., near Ambler, comprising about 10 acres with buildings totaling 80,000 sq. ft., and will use for expansion.

The Bisbee Linseed Co., Drexel Building, Philadelphia, has authorized preliminary plans for rebuilding the portion of its plant on the Delaware River, South Philadelphia, to cost \$250,000 with equipment. Edgar C. Bisbee is president.

Watson K. Phillips, 213 South Fifth Street, Philadelphia, architect, has plans under way for a three-story automobile service, repair and garage building, 100 x 100 ft., to cost about \$75,000, at Camden, N. J.

Fire, Jan. 6, destroyed a portion of the plant of the Essex Rubber Co., Beakes and May Streets, Trenton, N. J., manufacturer of tubing, etc., including machine shop, finishing and other departments, with loss reported at \$150,000 with equipment. It is planned to rebuild. Clifford H. Oakley is president.

The Lower Merion Township School District, William L. Austin, Rosemont, Pa., president, contemplates the installation of manual training equipment in a proposed two-story addition to the senior high school on Montgomery Avenue, Ardmore, Pa., to cost about \$300,000. Ralph E. White, Pennsylvania Building, Philadelphia, is architect.

The Pennsylvania Power & Light Co., Allentown, Pa., is disposing of a bond issue of \$10,000,000, a portion of the proceeds to be used for extensions and betterments. The company has begun work on a hydroelectric power plant at Hawley, Pa., to develop a capacity of 40,000 kw., and on a new steam-operated electric power plant for a subsidiary organization, to be equipped for an output of 30,000 kw. P. B. Sawyer is vice-president and general manager.

The Bates Valve Bag Co., Nazareth, Pa., is pushing construction on its new plant on Meadow Lane and will give employment to about 100. It is expected to have the plant ready for occupancy in February. The company has disposed of its present factory, and will remove the equipment to the new structure, which will be devoted to the manufacture of bag-filling machinery, etc. Headquarters are at 8200 Chicago Avenue, Chicago.

Fire, Jan. 12, destroyed a portion of the plant of the Mahanoy City Paper Box Co., Mahanoy City, Pa., with loss reported at \$85,000 including equipment. It is planned to rebuild.

Plans are nearing completion for a new junior high school with manual training department at Williamsport, Pa., estimated to cost \$400,000, for which bids will be asked.

on a general contract in the near future. Guilbert & Betelle, Chamber of Commerce Building, Newark, N. J., are architects.

The United States Coast Guard, Washington, is arranging for the erection of a new plant at Cape May, N. J., for the general reconditioning of machinery and parts production of patrol and picket boats. The works will include an oil reclaiming plant, handling primarily crank case oil for reclamation and distribution.

The Board of Education, Phillipsburg, N. J., is considering the installation of manual training equipment in its proposed new high school, to cost \$375,000. Ernest Sibley, Bluff Road, Palisade, N. J., is architect.

Ambrose G. Warren, vice-president and treasurer Aetna Foundry Co., Philadelphia, has purchased for that company the foundry formerly used by the Niles-Bement-Pond Co., machine tool builder, at Nicetown, Philadelphia. The building is being put in condition for occupancy by the Aetna Foundry Co., which will then be equipped to do a large jobbing foundry business. The main foundry is about 120 x 350 ft. and has cranes of all capacities up to 50 tons. The pouring capacity is 35 tons per hr. There is a pattern storage building 60 x 233 ft. and a three-story pattern shop, 38 x 82 ft. Officers of the Aetna Foundry Co. are: President and general manager, Richard T. Thum; secretary, George Schmidt, and Mr. Warren, who is vice-president and treasurer.

The William Cramp & Sons Ship & Engine Building Co., Philadelphia, has been awarded contract for a steamship for the Eastern Steamship Co., duplicating one now on the ways. Work on these two boats will keep the shipyard fairly busy for several months.

The Eshenower & Hatmaker Machine Tool Works, Inc., 520 South Cameron Street, Harrisburg, Pa., which has been a partnership for the past two years, has been incorporated under the laws of Pennsylvania with a capital stock of \$25,000. Its business chiefly consists of the machining of 10 to 15 per cent manganese cast and forged steel.

The Flory & Deshler Mfg. Co., Bangor, Pa., has been incorporated with a capital stock of \$10,000, and has taken over the business conducted by the Never-Break Products Co. In addition to brake shoes for Ford automobiles, it will manufacture other patented specialties and will distribute its products through jobbers.

The National Piston Corporation, 127 Edward Street, Philadelphia, will manufacture ringless-sectional pistons, but it has not been determined whether the company will do its own manufacturing or have it done on contract.

The Charles T. Jones Co., 981 North Front Street, Philadelphia, has been organized to succeed Jones & Willson, machine blacksmiths making steel and iron forgings. The business was started in 1812 and the partnership with Mr. Willson, which began in 1916, was dissolved at the end of 1925 because of Mr. Willson's ill health. Contract work is undertaken. Equipment at present includes two steam hammers, two heating furnaces, four blacksmith forges, a drill press, and a complete cutting and welding outfit.

The Ornamental Iron Works, Inc., Broad Street Bank Building, Trenton, N. J., has been organized with capital of \$50,000 to manufacture and deal in all kinds of ornamental iron work. The company has leased a plant and materials and equipment have been purchased and installed.

South Atlantic States

BALTIMORE, Jan. 18.

TENTATIVE plans are under consideration by the Edward Katzinger Co., 1949 North Cicero Avenue, Chicago, manufacturer of bakers' and confectioners' equipment, for a one and two-story branch plant at Fleet and Eighth Streets, Baltimore, to cost about \$500,000 with machinery. Edward Katzinger is president.

Fire, Jan. 11, destroyed a portion of the three-story iron foundry of the Kennedy Corporation, Charles and Wells Streets, Baltimore. An official estimate of loss has not been made. It is planned to rebuild.

The Great Valley Anthracite Corporation, Baltimore, recently organized by J. W. Edelen, president Enterprise Fuel Co., Hanover and Fayette Streets, and associates, plans the installation of a coal-mining and distributing plant on properties in the New River district, Virginia, to cost \$300,000. W. O. Pierson, vice-president Union Trust Co., Charles and Fayette Streets, has been made treasurer.

The South Carolina Power & Light Co., Charleston, S. C., contemplates enlargements in its electric power and ice-manufacturing plants at Kingstree, S. C., including the installation of additional equipment. An extension is also proposed in the ice-manufacturing plant at Manning, S. C.

The Cunningham Brick Works, Thomasville, N. C., is considering rebuilding the portion of its plant destroyed by fire Jan. 8, with loss estimated at \$50,000 including equipment.

The Munson Battery Service Co., 126 Richmond Street, Baltimore, is said to have plans for a two-story addition, 45 x 70 ft., on adjoining site to cost approximately \$48,000 with equipment. H. B. Munson is head.

The Washington Steel Products Co., Smith Building, 815 Fifteenth Street, N. W., Washington, has inquiries out for two electric hoists, 15 and 35 hp., respectively, direct-connected motors, with drum control; also for one 100-hp. motor, 2300 volts, 60-cycle, slip-ring type.

The Flynn & Emrich Co., 305 North Holliday Street, Baltimore, manufacturer of stokers, parts, etc., will defer for several weeks the erection of its proposed one-story foundry addition, 100 x 250 ft., to cost \$50,000, for which bids were recently asked on a general contract.

Montgomery Ward & Co., Washington Boulevard, Baltimore, operating a mail order storage and distributing plant, have filed plans for two additions, to be eight-stories, 140 x 200 ft., and two-stories, 200 x 600 ft., to cost more than \$600,000 with equipment. Headquarters are at Chicago Avenue and Larabee Street, Chicago.

Fire, Jan. 10, destroyed a portion of the plant of the Perfect Belt Mfg. Co., Mitchel Street, Atlanta, Ga., manufacturer of mechanical belting, etc., with loss reported at \$15,000. It is planned to rebuild.

R. P. Johnson, Wytheville, Va., machinery dealer, has been making inquiries for a vertical gang borer with 8 spindle heads for boring $\frac{3}{8}$ -in. holes, complete with counter-shaft, etc.

Spoon & Lewis, American Bank Building, Greensboro, N. C., consulting engineers, have been making inquiries for a quantity of 85-lb. relaying rails.

Ovens, power equipment, conveying apparatus, loading machinery, etc., will be installed in the proposed four-story and basement plant, 150 x 390 ft., to be erected at Edmondson Avenue and Pentalou Street, Baltimore, by the Ward Baking Co., New York, estimated to cost \$500,000 with equipment. C. B. Comstock, 110 West Fortieth Street, New York, is engineer. Contract for excavations has been let and superstructure work will soon begin.

The Lane Joist Hanger Co., Baltimore, recently organized, has leased property at Third and O'Donnell Streets for the establishment of a plant for the manufacture of iron hangers for building service. Silas Lane heads the company.

McKeown Brothers, Inc., 112 West Adams Street, Chicago, manufacturer of wood trusses, has acquired 5 acres at Atlanta, Ga., and contemplates the construction of a new plant, consisting of four one-story units, estimated to cost \$160,000 with equipment.

The Dixie Fire Kindler Co., Fountain Inn, S. C., manufacturer of fuel briquettes from pine waste, is considering preliminary plans for a new works in the vicinity of Savannah, Ga., to cost \$75,000 with machinery. The company has recently completed a new mill at Douglas, Ga. T. D. Wood is president.

S. M. Findley, Oak Park, Ga., has inquiries out for wood-turning and other machinery for the manufacture of spokes, handles, etc.

The Central of Georgia Railway Co., Savannah, Ga., is asking bids for a new engine house with repair facilities, storehouse and other shop buildings at Albany, Ga., each one-story, reported to cost \$50,000 with equipment. C. K. Lawrence is chief engineer.

The United States Cast Iron Pipe & Foundry Co., 71 Broadway, New York, with main foundry at Burlington, N. J., is reported to have closed negotiations for the purchase of the plant and business of the Standard Cast Iron Pipe & Foundry Co., Atlanta, Ga., for a new branch works.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a stiff-leg derrick, with 45-ft. boom, complete with bull wheel, fittings, etc.; also for one 30-hp. slip-ring motor, 1800 r.p.m., with drum controller, slide base, pulley, etc.

The Cannon Mfg. Co., Kannapolis, N. C., is said to be planning the construction of a power house in connection with a proposed textile mill on the Concord-Salisbury Highway, estimated to cost \$2,000,000. A machine shop will also be installed.

Sears, Roebuck & Co., Arthington and Homan Avenues, Chicago, operating a mail order business, have awarded a general contract to the B. W. Construction Co., Chicago, for a proposed nine-story and basement storage and distributing plant at Atlanta, Ga., to cost \$2,500,000. A power house will be installed. George C. Nimmons & Co., 122 South Michigan Avenue, Chicago, are architects.

The Lake Drive Garage Co., Inc., Baltimore, has awarded a general contract to the B. F. Bennett Building Co., 123 South Howard Street, for a two-story service, repair and garage building, 100 x 200 ft., to cost approximately \$85,000 with equipment. George S. Childs, 306 St. Paul Street, is architect.

The R. S. Armstrong & Brother Co., Atlanta, Ga., machinery dealer, has inquiries out for a jaw crusher, 18 x 24 in.

The Martin Furniture Co., Hickory, N. C., will proceed with the immediate erection of a new plant, 160 x 160 ft., for finishing, spraying and other service, to replace the portion of the works recently destroyed by fire. It will cost approximately \$50,000. G. N. Hutton is president.

In respect to an item on page 1788 in the issue of Dec. 24, that the Baltimore & Ohio Railroad Co. proposed extending its locomotive repair shop at Cumberland, Md., L. P. Kimball, engineer of buildings of the railroad, at Baltimore says: "At the present time we do not expect to carry out any work of this character."

The Pronto Mfg. Co., 722 East Pratt Street, Baltimore, has been incorporated with capital stock of \$50,000 to manufacture electrical appliances. The chief incorporator is William D. Schofield, Baltimore.

Pittsburgh

PITTSBURGH, Jan. 18.

MACHINE-TOOL business in this district, although still running chiefly to single tools, is showing some gain compared with last month. Some increase in inquiries has been noted and the trade is of the opinion that considerable business will materialize in the next 60 days.

The Iron Purifying Co., has been organized by Walter V. Berry, formerly with the Metal Improvement Co., Cleveland. It is engaged in the sale of "Desulfo," a sodium carbonate compound which is finding use in the iron and steel industry desulphurizing, deoxidizing and purifying the ferrous metals. Offices of the company are at 1900 First National Bank Building, Pittsburgh.

The Huntingburg Wagon Works, Huntingburg, Ind., has purchased the Hercules Buggy Works, Evansville, Ind., and will remove the business to Huntingburg where all manufacturing will be done.

Plans are being prepared by the Lustrco Coated Sheets Co., 1312 Sheffield Street, Pittsburgh, for a one-story plant, 100 x 205 ft., on site recently purchased, to cost \$60,000. The Austin Co., is engineer and contractor.

Merger plans have been completed by the Forged Steel Wheel Co., Frick Building, Pittsburgh, and the Columbia Steel Co., Elyria, Ohio, under the direction of the last noted company. Plans are under way for expansion, to include the erection of a new unit for strip sheet production and affiliated manufacture.

The Board of Education, Fulton Building, Pittsburgh, is considering the installation of manual training equipment in its proposed Herron Hill junior high school to cost \$1,250,000. James T. Steen & Sons, Vandergrift Building, are architects.

The North American Coal Co., recently organized, will take over and consolidate the Pittsburgh Terminal Coal Corporation, Wabash Building, Pittsburgh, and the Cleveland & Western Coal Co., Union Trust Building, Cleveland. The new company will operate properties in West Virginia and Ohio and plans the installation of additional power equipment and machinery. Fred E. Taplin, president, is in charge.

The Auto Parts & Wrecking Co., 1521 Fourth Avenue, Huntington, W. Va., is having plans drawn for a two-story service and repair shop to cost \$30,000.

The Harbison-Walker Refractories Co., Farmers' Bank Building, Pittsburgh, is contemplating erection of a new plant in the vicinity of Mill Hall, Pa., including power house, estimated to cost \$150,000.

The Penn Central Light & Power Co., Altoona, Pa., is disposing of a block of preferred stock, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The State Board of Control, Charleston, W. Va., has plans for a mechanical building at the New River State school at Montgomery, to cost \$75,000, for which superstructure will soon begin. Warne, Tucker & Patterson, Masonic Temple Building, Charleston, are architects.

The Board of Education, Knoxville, Pa., M. G. Knoepp, 407 Zara Street, Pittsburgh, president, is considering the installation of manual training equipment in a proposed two-story union high school to cost \$250,000. P. C. Dowler, Magee Building, Pittsburgh, is architect.

Cincinnati

CINCINNATI, Jan. 18.

ALTHOUGH local builders have been successful in closing a moderate number of orders for single machines, extensive buying of machine tools has not opened up. Outstanding quotations total a large volume in the aggregate, and it is reasonable to expect that sales in the latter half of January will exceed those in the first half by a comfortable margin. Demand from automobile makers is fairly good, but is far below that in October and November. Railroad inquiry is heavy, and the Illinois Central is expected to buy against its list for the Paducah, Ky., shops in the next ten days.

Little foreign business of consequence is anticipated in the next six months. Italian automobile companies which placed sizable orders locally the early part of last year are not likely to make important purchases in 1926, while reports from Germany state that economic conditions are so unsatisfactory that the marketing of American machinery in that country is out of the question for at least a considerable time. Neither France nor England is in a position to buy many American tools in the near future. The only foreign market in which builders are securing attractive business is South America and the demand there is not large.

Production in Cincinnati machine-tool plants varies to a marked extent. The majority of large factories are operating at a high rate. For example, one manufacturer of a large machine is reported to have orders on hand for about 20 machines, thus making it necessary to operate at capacity with the present working force. On the other hand, a few of the plants are having difficulty in sustaining the production schedule which has prevailed lately, because of the lack of future business.

The Cincinnati Planer Co. sold a 42-in. planer in Pennsylvania and a similar machine in Illinois. The Baltimore & Ohio Railroad purchased a No. 3 carwheel lathe from the Niles-Bement-Pond Co. and the latter also booked a 36-in. x 44-ft. sidehead boring mill from the Murray Co., Dallas, Tex. A local turret lathe manufacturer received orders for two machines from a Cincinnati company and single machines from a Pacific Coast concern and an oil company. H. W. Caldwell & Sons Co., Chicago, and the Manitowoc Shipbuilding Corporation, Manitowoc, Wis., each bought a Ramsom motor-driven grinder. The Union Tank Car Co., Whiting, Ind., closed for a 22-in. Morris lathe, and the Bucyrus Co., Milwaukee, purchased a No. 7 Newark automatic gear cutter. The Ford Motor Co. bought a Long & Allstatter special guillotine shearing machine. The Minneapolis Heat Regulator Co., Minneapolis, purchased a Cincinnati high speed ball-bearing drill, while the American Terry Derrick Co., South Kearny, N. J., bought a Long & Allstatter gate shear. The Delco Light Co., Dayton, Ohio, closed for four No. 12 profiling machines. A manufacturer in the Detroit district bought four lathes and the Standard Oil Co. of New York purchased a lathe. The Hercules Corporation, Evansville, Ind., has bought two thread milling machines. Among the inquiries before the trade are two lathes for a Chicago manufacturer, two lathes for New York delivery, three lathes for a company in the South and four lathes also for shipment to the South.

The used machinery market is showing signs of activity. The New Era Mfg. Co., Paterson, N. J., bought a 50-in. x 36-ft. x 20-ft. Pond planer, and the Morgan Construction Co., Worcester, Mass., purchased a 48-in. geared head lathe. The Heppenstal Forge Co., for its Bridgeport, Conn. plant, took a 26-in. x 18-ft. lathe. Other orders of used tools included drills, grinders and milling machines.

Machinery owned by the Clydesdale Motor Truck Co., Clyde, Ohio, will be sold at auction Jan. 19 and includes lathes, millers, shapers, screw machines, planers, presses, hundreds of drills, reamers and taps.

The Dayton Fun House & Riding Device Co., 119 South Hatfield Street, Dayton, Ohio, has been incorporated with a capitalization of \$75,000 and will erect a plant adjacent to its present factory at an estimated cost of \$25,000. Aurel Vaszin is president.

The Mosaic Tile Co., Zanesville, Ohio, has placed contract with the H. K. Ferguson Co. for two factory buildings, one two stories, 120 x 180 ft., the other one story, 150 x 180 ft.

The Dickerson Steel Co., Dayton, has purchased a one-story brick building formerly occupied by the Davis Sewing Machine Co. It manufactures structural steel and was organized in 1917. A. V. Dickerson is president.

The Queen City Foundry Co., Spring Grove Avenue and

Alabama Street, Cincinnati, has been incorporated to operate a grey iron foundry. The company operated for 25 years under a partnership between J. D. Leary and William Manley, who died recently. Mr. Leary will be president of the new company.

The Fairfield Paper Co., Baltimore, Ohio, has awarded a general contract to the H. K. Ferguson Co., Cleveland, for a new mill at Chillicothe, Ohio, to cost approximately \$250,000 with machinery. T. D. Griley is president.

The Yardley Screen & Weatherstrip Co., Gustavus Lane, Columbus, Ohio, has engaged Snyder & Babbitt, Hayden Building, architects, to prepare plans for its one-story and basement addition, 150 x 350 ft., to cost about \$65,000. A. L. Yardley is president.

The Fulton Co., Knoxville, Tenn., manufacturer of heat-regulating apparatus, has awarded a general contract to J. M. Dunn & Son, Knoxville, for a one-story and basement addition, 50 x 130 ft., to be used primarily as a corrugating department. It will cost about \$35,000.

The Mead Paper Co., Chillicothe, Ohio, will proceed with the erection of a new power plant to cost \$350,000 with equipment. The work will be handled by the Mead Engineering & Development Co., an affiliated organization. Headquarters are at Dayton. H. P. Carruth is general manager.

The Duro Pump & Mfg. Co., 537 East Monument Avenue, Dayton, Ohio, has awarded a general contract to the Danis-Hunt Co., First and Webb Streets, for its two-story addition, 60 x 200 ft., to cost \$175,000 with machinery. Schenk & Williams, Mutual Home Building, are architects.

The Big Sandy Ice Co., Big Sandy, Tenn., will build a one-story ice-manufacturing plant for which equipment will be purchased soon. W. L. Goforth heads the company.

The Haywood County Board of Education, Brownsville, Tenn., has plans for an addition to the high school, to be equipped as a manual training department, estimated to cost \$35,000.

Sterchi Brothers & Montgomery, Inc., 213 Third Avenue, North, Nashville, Tenn., will make extensions and improvements in its wood-working plant to cost about \$50,000, including additional equipment. J. G. Sterchi is head.

Alexander M. Robinson, Georgetown, Ky., machinery dealer, has been making inquiries for a stiff-leg derrick for handling sand and gravel.

The Red Bank Sand & Gravel Co., 5225 Eastern Avenue, Cincinnati, will erect a new sand and gravel handling plant, including tipple, washer and accessory equipment.

The foundry and business of the McNaughton Mfg. Co., Maryville, Tenn., is reported to have been acquired by new interests, headed by O. H. Shriver, Knoxville, Tenn., and associates. The new owners plan extensions and betterments and will continue production for the manufacture of iron grate bars and other iron castings.

E. W. Cooper, 509 Deaderick Street, Nashville, Tenn., engineer, has been inquiring for a clamshell and derrick type dredge, medium size, for sand and gravel production on the Cumberland River; also for one stiff-leg derrick and clamshell bucket for unloading barges at yard, about 1½ yd. capacity.

The Edwards Mfg. Co., Cincinnati, manufacturer of sheet metal specialties, has been incorporated in Ohio for \$30,000. The company, which originally was incorporated in Kentucky, applied for a charter to protect its corporate name in Ohio. E. W. Edwards is president.

Buffalo

BUFFALO, Jan. 18.

NEGOTIATIONS have been closed by the Rand Kardex Bureau, Inc., Tonawanda, N. Y., manufacturer of office filing equipment and devices, for a controlling interest in the Globe-Wernicke Co., Cincinnati, manufacturer of metal and wood filing cases, cabinets, etc., and will operate as a division of its business. The new owner will continue production at the present Globe-Wernicke plants and contemplates expansion. The Rand organization recently purchased the Library Bureau, Inc., Cambridge, Mass., and Ilion, N. Y., manufacturer of similar filing equipment and has consolidated with its business. A note issue of \$3,200,000, has been arranged, a portion of the proceeds to be used for expansion. J. H. Rand, Jr., is president.

The Worthington Pump & Machinery Corporation, Roberts Avenue, Buffalo, has taken out a permit for a one-story addition to its foundry, estimated to cost \$50,000 with equipment. Headquarters are at 115 Broadway, New York.

The Carborundum Co., Buffalo Avenue, Niagara Falls, N. Y., manufacturer of abrasive products, has awarded a general contract to Laur & Mack, 1400 College Avenue, for

a three-story addition to building No. 37, 35 x 84 ft., to cost \$30,000. L. J. Call is company engineer.

The Lamson Co., Syracuse, N. Y., manufacturer of conveying apparatus, etc., has work in progress on a one-story addition, 63 x 200 ft., for which a contract recently was let to the H. K. Ferguson Co., Cleveland. The structure will be equipped with a 5-ton traveling crane.

The R. & J. Garage Co., Main Street, Little Falls, N. Y., will begin the erection of a three-story service and repair building addition, 26 x 49 ft., to cost \$45,000 with equipment.

Fire, Jan. 13, destroyed a portion of the plant of the Waterloo Folding Box Co., Waterloo, N. Y., manufacturer of paper boxes, etc., with loss estimated at \$50,000 including equipment. It is planned to rebuild.

The Western New York Water Co., Electric Building, Buffalo, is considering the construction of a 1,000,000-gal. capacity steel standpipe in connection with proposed improvements in plants and system in the Woodlawn district.

The Board of Education, Alexandria Bay, N. Y., is considering the installation of manual training equipment in a proposed two-story high school to cost \$250,000. Tooker & Marsh, 101 Park Avenue, New York, are architects.

The American Radiator Co., 87 Rano Street, Buffalo, has plans for a one-story addition at its local Bond plant, to be used as a machine shop, and will soon begin superstructure work. Headquarters are at 40 West Fortieth Street, New York.

The Crouse-Hinds Co., Wolf and Seventh Streets, Syracuse, N. Y., manufacturer of electrical specialties, has plans for a two-story addition, to cost about \$40,000 with equipment. Gaggin & Gaggin, University Building, are architects.

A company called Smith Home Appliances, Inc., is being formed in Syracuse, N. Y., to manufacture and market a new electric ironing machine for domestic use. There will be 10,000 shares of class A and 90,000 shares of class B, non-assessable common stock without par value. Interests connected with the L. C. Smith Typewriter Co. are back of the new company. The machine, which is the invention of Mead Hedglon, will be manufactured in the Smith Wheel, Inc., plant, North Geddes Street, Syracuse, where wheels are being made for trucks and automobiles.

The Co-Operative Foundry Co., Rochester, N. Y., is planning to double the capacity of its porcelain enameling department. The Porcelain Enamel & Mfg. Co., Baltimore, has been given the contract for this work.

St. Louis

ST. LOUIS, Jan. 18.

THE Tulsa Brass Castings Co., Tulsa, Okla., recently organized, has acquired a local building for its proposed foundry, 27 x 70 ft., and will install molding equipment, sand blast apparatus, air compressor and auxiliary equipment.

The Wilson-Wetterhold Machinery Co., 214 South Wichita Street, Wichita, Kan., is considering the erection of a one-story and basement works, 150 x 150 ft., to cost \$50,000. C. O. Newman is manager.

The Edmond Ice Co., 101 West Second Street, Edmond, Okla., will begin the construction of a one-story addition to its ice-manufacturing plant, to cost about \$25,000 with equipment.

The Barnsdall Corporation, Tulsa, Okla., operating oil properties and refineries, has completed arrangements for the acquisition of the Walte-Phillips Co., Tulsa, operating oil refineries at Okmulgee, Okla., and Wichita, Kan. The new owner will consolidate with its organization and has preliminary plans under way for extensions and improvements. A bond issue of \$25,000,000 has been sold, the proceeds to be used for financing in connection with the merger, and for expansion. E. B. Reeser is president of the Barnsdall organization, which maintains headquarters at 624 South Michigan Avenue, Chicago.

The Board of Education, Joplin, Mo., plans the installation of manual training equipment in one or more of the proposed schools to be constructed with an appropriation of \$750,000, recently arranged. Smith & Van Pelt, Frisco Building, Joplin and J. H. Felt & Co., Grand Avenue Temple Building, Kansas City, Mo., are architects.

The Bolene Refining Co., Enid, Okla., will soon proceed with extensions and improvements in its local oil refinery, including the installation of cracking machinery for gasoline production to develop an output of 2000 bbl. per day, and other equipment.

The Board of Education, Tulsa, Okla., plans the installation of manual training equipment in its proposed two-story and basement Grover Cleveland junior high school at Atlanta and Haskell Streets, to cost \$225,000. Leland I. Shumway, New Wright Building, is architect.

The Ponca City Milling Co., Ponca City, Okla., plans the construction of a power house in connection with a proposed five-story flour mill. The entire project will cost in excess of \$100,000. Homer & Wyatt, Board of Trade Building, Kansas City, Mo., are engineers.

The Springfield Gas & Electric Co., Springfield, Mo., is said to have plans under way for extensions and improvements in its steam-operated electric power plant, to include the installation of a 10,000 kw. turbo-generator and auxiliary equipment, estimated to cost \$500,000. A. E. Reynolds is vice-president.

The Maplewood Planing Mill & Stair Co., 2721 Sutton Avenue, St. Louis, has plans for a two-story addition, 100 x 100 ft., to cost about \$24,000 with machinery.

The City Council, Lawrence, Kan., plans the installation of pumping machinery in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost \$75,000. Kiersted & Stringfellow, Interstate Building, Kansas City, Mo., are engineers.

The State Board of Control, Capitol Building, Lincoln, Neb., has plans under way for extensions and improvements in its power house, including the installation of additional equipment, to cost \$100,000. Work will soon begin by day labor.

The Job-Top & Body Co., 230 Cole Building, Tulsa, Okla., has been organized under the laws of Delaware, with a capital of 45,000 shares of stock without par value. The company is preparing to manufacture a type of automobile top with ventilating windows pivoted top and bottom, together with a rear ventilator designed to avoid a swirl of air within the car. Contracts have been awarded to take care of present needs. K. C. Jopling is president; D. A. McDougal, vice-president, and P. M. Beard, secretary-treasurer.

Chicago

CHICAGO, Jan. 18.

SALES are not heavy and those recorded are largely confined to small tools from widely diversified industries. Inquiries, on the other hand, are numerous and promise active business in the near future. Prices are steady and deliveries, if they have changed at all, have slightly improved. The delivery situation is accounted for by the fact that December business did not crowd manufacturers as did that of September, October and November. One dealer in milling machines states that he has already sold his January quota and that deliveries on his line are not better than the latter part of March.

The Pullman Car & Mfg. Corporation, Chicago, has closed for a lathe against its outstanding list and also bought a die sinking machine. The Morgan-Gardner Electric Co., Chicago, is said to be placing tools against its published requirements. The International Harvester Co., Chicago, has bought several grinders and is said to be studying its equipment with the purpose of replacing obsolete tools with modern machines. The Continental Can Co., Chicago, will soon buy a number of lathes, shapers and milling machines, and the quartermaster's depot, United States Army, Chicago, is inquiring for a motor-driven universal tool and cutter grinding machine. The National Lock Co., Rockford, Ill., has bought an automatic milling machine. The trade expects lists at an early date from the Union Pacific and the Burlington railroads.

The Lathrop-Paulson Co., 2447 West Forty-eighth Street, Chicago, manufacturer of milk cans and bottle washing machines, has had plans prepared by Frank W. Perkins, 6640 Yale Avenue, for a two-story factory, 36 x 120 ft., to cost \$18,000.

Morris A. Sokoloff, 4125 Greenshaw Street, Chicago, manufacturer of ornamental iron, has plans by Frank W. Perkins, 39 West Adams Street, for a two-story factory, 49 x 123 ft., to cost \$25,000.

The Woodstock Metal Products Co., Woodstock, Ill., has been incorporated to manufacture special tools, dies, jigs, and fixtures, and metal products requiring tool work and assembly. Officers are N. M. Marsilius, president; Mac Marsilius, vice-president; John Hoy, treasurer, and Charles E. Low, secretary.

The Johnson Shuttle Co., 215 West Superior Street, Chicago, manufacturer of sewing machine shuttles and attachments, is asking bids on a general contract for a one-story

addition, 75 x 125 ft., to cost \$30,000. Carl M. Almquist, 118 North La Salle Street, is architect.

The Western Mfg. Co., Oskaloosa, Iowa, manufacturer of air pumps, etc., is said to have tentative plans under advisement for a new factory on which work will begin in the spring. It is reported to cost \$30,000 with equipment. J. B. McMullen is general manager.

The Central States Power & Light Co., Davenport, Iowa, is disposing of a bond issue of \$1,000,000, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The Chicago Rivet & Specialty Co., 4842 West Kinzie Street, Chicago, has awarded a general contract to the Holton-Seely Co., 140 South Dearborn Street, for its proposed one-story plant, 120 x 140 ft., at Cicero, Ill., to cost approximately \$50,000. L. E. Russell, 140 South Dearborn Street, is architect. John A. Morrissey is president.

The Board of Trustees, Colorado School for Deaf and Blind, Colorado Springs, Colo., has plans for a power house at the institution, to cost \$40,000 with equipment. Elmer E. Nieman, 218 East Dale Avenue, is architect.

The Public Service Co. of Colorado, Denver, is disposing of a bond issue of \$1,500,000, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The Standard Sanitary Mfg. Co., 1716 Blake Street, Denver, Colo., will make extensions and improvements in its four-story plant to cost about \$30,000. Gordon S. White, 610 Columbine Street, is architect.

The Motor Power Equipment Co., 2512 University Avenue, St. Paul, Minn., manufacturer of agricultural machinery, etc., has awarded a general contract to the Paul Steenberg Construction Co., Builders' Exchange, for its two-story plant on the Ford Road, 130 x 280 ft., to cost approximately \$100,000 with equipment. C. M. Johnston, Capitol Bank Building, is architect. W. W. Logan is vice-president.

The Creamery Package Co., 67 West Kinzie Street, Chicago, manufacturer of dairy machinery, is said to be considering plans for an addition and will begin work in the spring. It is reported to cost in excess of \$100,000.

The Fisher Governor Co., Marshalltown, Iowa, manufacturer of pressure regulators, governors, steam traps, etc., will erect an addition to cost about \$22,000. Tentative plans are under advisement for a new power house.

The Cray Co., Minneapolis, has been incorporated with a capitalization of \$50,000 preferred stock and \$100,000 common stock. The company manufactures hand and pneumatic chisels and punches for use in garages and machine shops and expects later to manufacture other lines of steel tools, all of which will be turned out under the "Cray process" of tempering carbon steel.

Indiana

INDIANAPOLIS, Jan. 18.

PLANs are being prepared by the Indiana Service Corporation, West Main Street, Fort Wayne, Ind., for a new steam-operated electric power house to cost \$150,000. An equipment storage and distributing building will also be constructed.

The Commercial Box Co., 1410 South Capitol Avenue, Indianapolis, manufacturer of wooden packing boxes, etc., is considering rebuilding the portion of its plant recently destroyed by fire, with loss estimated at \$20,000 including equipment. Andrew and John Alexander head the company.

The Board of Education, 150 North Meridian Street, Indianapolis, plans the installation of manual training equipment in its proposed three-story Shortridge high school at Thirty-fourth and Meridian Streets, to cost \$1,250,000. J. Edwin Kopf and Wooling, Indiana Pythian Building, are architects.

The plant of the Stevenson Gear Co., Eleventh Street and Cornell Avenue, Indianapolis, has been acquired by Joseph and Benjamin Cohen, local scrap iron dealers, and others, for \$55,200. The new owners expect to dispose of a portion of the machinery and plan to lease the buildings for a new manufacturing enterprise, the exact character of which is temporarily withheld. The Stevenson company has been in receivership since 1923 and the plant has been closed for several months.

The Citizens Gas Co., Majestic Building, Indianapolis, will soon begin work on its proposed sulphate of ammonia unit, to be one-story, 60 x 150 ft., estimated to cost \$250,000 with machinery. Clarence Kirk is president.

The Terre Haute Paper Co., Nineteenth Street, Terre Haute, Ind., has plans for a new three-story mill, 47 x 100 ft., to cost \$75,000 with equipment.

The Board of School Trustees, Monroeville, Ind., will install a manual training department in a new high school

addition, to cost \$90,000, for which bids will soon be asked on a general contract. Pohlmeier & Pohlmeier, Central Building, Fort Wayne, Ind., are architects.

The Indiana Wheat Growers' Association, Herman Steen, secretary-treasurer, Indianapolis, will install conveying, hoisting, screening and other machinery in its proposed grain elevator, 55 x 260 ft., and 128 ft. high, for which plans have been drawn. It will cost about \$300,000 with equipment.

The Indianapolis Water Co., Indianapolis, plans the installation of additional pumping equipment and steam power apparatus at its Fall Creek water station to cost about \$50,000. Similar equipment, including air compressor and auxiliaries, will be installed in the Riverside pumping station. The work will be carried out in connection with an expansion program in 1926 to cost \$1,250,000. H. S. Morse is general manager.

The Tarpenning-LaFollette Co., engineer and sheet metal contractor, 1030 Canal Street, Indianapolis, heretofore conducted as a partnership, has been incorporated. No changes are contemplated in the business, according to a statement by the company.

The Johann Mfg. Co., Evansville, Ind., has been incorporated with capital stock of \$250,000 and will manufacture special commercial bodies for automobiles.

The Elgin, Joliet & Eastern Railway Co., Chicago, contemplates the construction of a round house at Gary, Ind., with capacity of 12 to 14 large locomotives, to cost in excess of \$300,000.

The Mead-Johnson Co., Evansville, Ind., is having plans prepared for extension and improvements in its power house, to include the installation of two turbo-generators, auxiliary equipment, stokers and coal and ash handling equipment, estimated to cost \$90,000. W. E. Briggs, Holston Building, Knoxville, Tenn., is engineer.

Holsclaw Brothers, Inc., Evansville, Ind., has recently organized a company with \$50,000 capital stock, for the manufacture of dies, tools, patterns, etc., and will also do general manufacturing.

Detroit

DETROIT, Jan. 18.

PRELIMINARY plans are being considered by the Vento Steel Sash Co., Muskegon, Mich., for two one-story additions, to cost \$50,000 with equipment.

The Ford Motor Co., Detroit, has awarded a general contract to the J. N. Blair Construction Co., Rand Building, Memphis, Tenn., for a one-story addition to its local plant, 400 x 665 ft., to cost approximately \$1,000,000 with equipment. Albert Kahn, Marquette Building, Detroit, is architect.

The Watervliet Paper Co., Watervliet, Mich., is considering plans for extensions in its mill to cost about \$500,000. The expansion will include the installation of a paper-making machine to double the present capacity, coating machine and auxiliary equipment, with electric power apparatus. The company is arranging for an increase in capital from \$820,000 to \$1,000,000, and for a bond issue of \$600,000.

The Hudson Motor Car Co., East Jefferson Street, Detroit, has plans for a one-story addition, 150 x 340 ft., for which foundations will soon be laid. Albert Kahn, Marquette Building, is architect.

The Electric Refrigeration Corporation, Detroit, has been organized to take over and consolidate the Kelvinator Corporation, 2051 West Fort Street; the Nizer Corporation, 7424 Mackie Street, both of Detroit, and the Grand Rapids Refrigerator Co., Grand Rapids, Mich., manufacturers of electric refrigerating apparatus, cabinets, etc. The new company is disposing of a note issue of \$3,000,000, a portion of the fund to be used in connection with the merger and for proposed expansion. A. H. Goss is president.

The Oakland Motor Car Co., Pontiac, Mich., a division of the General Motors Corporation, Detroit, has tentative plans for an addition, primarily for the production of rear axle housings, to cost \$400,000 with machinery.

The Benton Harbor Malleable Foundry Co., Benton Harbor, Mich., has plans for a one-story drop forge shop and one-story core room addition to cost \$25,000.

The Liberty Welding & Mfg. Co., 4200 Grand River Avenue, Detroit, will soon begin work on a one-story plant, 30 x 115 ft., at Calumet and Twelfth Streets, to cost about \$30,000, for which a general contract has been let to the M. M. Lerner Construction Co., 1442 Griswold Street. J. K. Smith is president and treasurer.

The Pontiac Pattern & Engineering Co., Pontiac, Mich., manufacturer of metal patterns, foundry apparatus, etc., has plans under advisement for a one-story addition, to cost \$22,000. Albert Webber is president.

The Grand Rapids Show Case Co., Grand Rapids, Mich.,

has filed plans for its proposed addition, to cost \$70,000 with equipment, for which superstructure will proceed at once.

The Bruce Products Corporation, 173 East Woodbridge Street, Detroit, manufacturer of metal finishers, abrasive wheels, buffing materials, etc., has acquired a factory at Howell, Mich., totaling about 50,000 sq. ft. of floor space, and will remove its works to this location. Additional equipment will be installed for increase in output.

The Berkey & Gay Furniture Co., 448 Monroe Street, Grand Rapids, Mich., has engaged Lockwood, Greene & Co., Buhl Building, Detroit, architects and engineers, to prepare plans for a six-story factory addition, to cost \$150,000 with equipment. It is said that bids will be asked on a general contract in February. E. A. Wallace is president.

The Detroit Metal Specialty Corporation, 1651 Beard Avenue, Detroit, has been incorporated to manufacture all steel automobile trunks, formerly made by the Ireland & Matthews Mfg. Co., Detroit. It has leased the building with equipment formerly used by the Ireland company and will be in full production in 30 days. It is in the market for a washing and rinsing machine of suitable size for trunks, with conveyor connecting to an enameling oven. D. M. Ireland is president and Neil McMillan, secretary-treasurer.

The Couzens Ice Machine Co., 2123 First National Bank Building, Detroit, has been incorporated with capital stock of \$1,000,000. It has not yet completed plans for manufacturing, but will be in the market shortly for material and equipment. James Couzens is president; Frank Couzens, vice-president and treasurer, and Clarence E. Wilcox is secretary.

The Harbridge-Millington Co., Dime Bank Building, Detroit, has been organized to manufacture an attachment for the Ford Carburetor. This is known as the "triple boost." Manufacturing is by contract.

Milwaukee

MILWAUKEE, Jan. 18.

CUSTOMERS of machine-tool builders are again making inquiry liberally and while sales so far this year have been rather slow, prospects are believed to be promising. All tool shops continue to operate at the peak point reached at the close of the year and some have as much as four and five months' work ahead. Automotive factories are expected to outline further needs following the automobile show, which is a guide to production schedules, and this year is regarded as indicating a favorable situation.

The Highway Machinery Co., Waukesha, Wis., has been organized by A. B. Hicken, O. A. Sweet and M. K. Hicken to manufacture machinery and tools for highway construction and maintenance. For the present its designs probably will be built under contract with local foundries and machine shops.

Monarch Tractors, Inc., Watertown, Wis., has effected a partial reorganization which will mean the transfer of the operation from Watertown to Springfield, Ill., on March 1. It is stated by E. B. Caldwell, president, that arrangements have been made to place another industry in the Watertown plant so that it will not remain idle. Monarch Tractors will occupy the plant of the former William Fetzler Co. and the McSherry Mfg. Co. at Springfield, and will do considerable retooling. It specializes in the manufacture of complete 5- and 10-ton track layer type tractors for heavy duty in highway construction, logging, and agriculture. R. W. Gotshall and H. B. Baker, formerly of the Holt Mfg. Co., Peoria, Ill., are president and vice-president, respectively, under the reorganization.

Trustees of Stout Institute, Menomonie, Wis., training school for manual training and domestic science teachers, and under State ownership and control, will close bids Jan. 27 for power and heating equipment, including two 125-hp. boilers and feed pumps, and two 10-kw., 115-volt generator units, with accessories. Charles A. Halbert, Madison, state chief engineer, prepared the specifications. Burton E. Nelson is president of the Institute.

The Northwest Engineering Works, Green Bay, Wis., manufacturer of industrial cranes, has placed contracts for the erection of an addition to its plant, mainly for painting and finishing processes.

The Marshfield, Wis., Board of Industrial Education has engaged Parkinson & Dockendorff, architects, LaCrosse, Wis., to design an addition to the Purdy vocational and junior high school, for which a bond issue of \$225,000 has been made. Marcus Hansen is clerk of the board.

The Plastic Products Co., 123 Reservoir Avenue, Milwaukee, has awarded contracts for the erection of a new

manufacturing unit, 76 x 200 ft., part two stories and basement, on the Port Washington Road. With machinery, tools, fixtures, etc., the investment will be about \$75,000. The architect is A. L. Seidenschwartz, 290 Third Street, local.

Roto-Air, Inc., has been organized by Reimar C. Kurtze, mechanical engineer, 1207 Thirty-sixth Street, Milwaukee, to manufacture mechanical devices and appliances. Gotthold W. Kuechle and William A. Harsh are associated with Mr. Kurtze. Plans are being made for manufacturing.

S. C. Johnson & Son, 1012 Sixteenth Street, Racine, Wis., manufacturers of waxes, finishes, varnishes, etc., have awarded contracts for the construction of additional stories on two factory buildings, 60 x 160 and 70 x 116 ft., and will spend about \$100,000 in buildings, power equipment, machinery, conveyors, etc. Herbert F. Johnson is managing director.

Gulf States

BIRMINGHAM, Jan. 18.

CONTRACT has been let by the Solar Water Heater Co., Tampa, Fla., to the Logan Brothers Co., Citizens' Bank Building, for the first unit of its proposed plant, to be one story, 100 x 100 ft., estimated to cost \$55,000 with equipment. The company is maintaining offices at 407 Tampa Street, pending the completion of the plant. H. C. Neilsberg is manager.

The Continental Oil Co., Denver, Colo., has acquired a controlling interest in the Texhoma Oil & Refining Co., Wichita Falls, Tex. The new owner is said to have plans for extensions and improvements in the local refinery, with additional equipment. W. H. Ferguson is vice-president of the Continental company.

The Firm Lumber Co., Hattiesburg, Miss., is contemplating the erection of a one-story ice-manufacturing plant to cost \$100,000 with machinery.

The American Gear & Mfg. Co., Jackson, Miss., has tentative plans for a one-story machine shop, 175 x 250 ft., to cost \$40,000.

The Florida Power & Light Co., Miami, Fla., has concluded arrangements for the purchase of nine electric utilities operating in this district. The new owner will consolidate with its organization and contemplates expansion in power plants in the different districts. A bond issue of \$3,000,000 has been sold by the Florida Power company for use, in part, with general expansion and betterments. S. R. Inch is president.

W. M. Smith & Co., Birmingham, machinery dealers, have been making inquiries for a hydraulic press, suitable for baling tin and other metal scrap.

The Southern Properties, Inc., Dallas, Tex., has acquired the plant and business of the Gatesville Ice Co., Gatesville, Tex. The new owner contemplates extensions and improvements, including additional equipment.

The Unit Mfg. Co., San Antonio, Tex., recently formed to take over the Unit Heating Co., 204 Pereido Street, is contemplating the erection of a new one-story plant for the manufacture of gas furnaces, gas heating appliances and kindred apparatus, to cost \$55,000 with machinery.

The St. Petersburg Motors Co., 264 Second Avenue, South, St. Petersburg, Fla., is considering plans for a three-story service, repair and garage building, totaling about 40,000 sq. ft. of floor space, estimated to cost \$200,000 with equipment. M. Leo Elliott, St. Petersburg, is architect. T. M. Kelley is general manager.

E. R. Lowe, Coral Gables, Fla., has plans for a two-story machine shop at 46 Avenue Almerio, to cost \$42,000. Equipment will be electrically operated. Pfeiffer & O'Reilly, Hahn Building, are architects.

The Houston Gulf Gas Co., Houston, Tex., operating natural gas properties, has arranged for a bond issue of \$5,700,000, a portion of the fund to be used for extensions and improvements. Work has started on a new pipe line from the gas fields to Houston, about 184 miles. Other lines will be built later. William L. Moody, 3d, is vice-president.

The Board of Education, Colorado, Tex., plans the installation of manual training equipment in its proposed new high school, to cost \$160,000, for which plans are being prepared by C. H. Griesenbeck, 1206 Southwestern Life Building, Dallas, Tex., architect.

The City Council, Lometa, Tex., plans the installation of pumping equipment in connection with extensions and improvements in the municipal waterworks, for which it is purposed to issue bonds for \$40,000.

The Palestine Ice Co., 106 Houston Street, Palestine, Tex., will build a one-story ice-manufacturing plant, 70 x 200 ft., with capacity of 70 tons per day, reported to cost \$85,000 with equipment. The General Engineering & Management Corporation, 165 Broadway, New York, is engineer in charge. W. B. McNaughton is general manager.

The Dallas Power & Light Co., Dallas, Tex., will soon begin work on a new steam-operated electric generating plant with initial capacity of 25,000 kw. A turbo-generating unit, condensers, boilers and auxiliary equipment will be installed. C. W. Davis is vice-president.

The Roberts-Bize Motor Co., Thirteenth Street and First Avenue, North, St. Petersburg, Fla., is considering plans for a two-story service, repair and garage building, 100 x 150 ft., to cost \$40,000.

The G. C. Phillips Tractor Co., 116 North Seventeenth Street, Birmingham, has acquired property at Seventeenth Street and Second Avenue and will erect a one-story plant for the production of road-building machinery and parts, to cost approximately \$25,000.

The Houston Lighting & Power Co., Houston, Tex., has arranged an expansion program for 1926 to cost approximately \$2,000,000. It will include enlargements in the steam-operated electric power plant at Deepwater, with the installation of a 30,000-kw. turbo-generator and accessory machinery, doubling approximately the present capacity. This work will cost about \$800,000.

The Tampa Lumber & Mfg. Co., Tampa, Fla., will proceed with the construction of a one-story wood-working plant at Parkwood and Horatio Streets, to cost about \$40,000 with equipment.

The American Hydraulic Motor Co., Houston, Tex., has been incorporated but is not yet ready to announce plans for manufacturing.

Cleveland

CLEVELAND, Jan. 18.

WHILE there has been a slowing up in some directions, machine-tool business was fair the past week and dealers are working on a number of live inquiries. Lathes are more active than other lines. Several presses were purchased by a local company being organized to manufacture stampings. The Detroit market is quiet although some business is in prospect from the automotive industry in that city.

The Nickel Plate railroad has placed an order with the Niles-Bement-Pond Co., for a 16-in. Pratt & Whitney lathe and a 30-in. x 18-ft. Pond lathe. The Niles-Bement-Pond Co. received an order from the General Electric Co., for a 16-in. Pratt & Whitney lathe for its Nela Park plant. The Cleveland Planer Co. has taken orders for two 48-in. machines for the Morgan-Gardner Electric Co., a 36-in. planer for the Pullman Car & Mfg. Corporation, Chicago, and a 30-in. planer for the Barth Stamping & Machinery Co., Cleveland. The Ford Motor Co., Detroit, has bought a 10-in. vertical shaper. F. Joseph Lamb, Detroit, bought a jig boring machine and the Standard Tool Co., Cleveland, bought two 16-in. geared-head lathes and one automatic lathe.

The F. E. Schumacher Co., Hartsville, Ohio, is in the market for used presses similar to No. 105 Bliss Consolidated type. It manufactures screen doors and extension screen windows.

The Universal Steel Co., 2966 East Fifty-fifth Street, Cleveland, has been incorporated with a capital stock of \$50,000 and is erecting a warehouse with 7000 sq. ft. of floor space for conducting a jobbing business in sheets, strip steel and other steel products. John Miller is president; Alexander Miller, vice-president; Lewis Miller, treasurer, and Harry Resnick, secretary.

The White Sewing Machine Co., Cleveland, has been purchased from the estate of Thomas H. White by officers of the present company acting in conjunction with New York banking interests. The deal involved about \$9,000,000. The purchasers, in addition to the banking interests, are, A. S. Rogers, president of the company, and Oscar Groethe, vice-president.

The Simpson Foundry & Engineering Co., Newark, Ohio, is having plans prepared for a one-story foundry, 120 x 200 ft.

The Canton Ventilator Works, Inc., Canton, Ohio, has been incorporated to take over an existing sheet metal product manufacturing business in window ventilators. The building was already constructed. It has been equipped with modern machinery for an output of 10,000 ventilators per day. The company is always in the market for material, principally for No. 24 gage, extra pure, open-hearth base pickled and annealed, vitreous, enameling sheets, free of oil. H. J. Bowman is general manager.

Canada

TORONTO, Jan. 18.

WHILE there has been no general change in the machine-tool market of late, many industrial lines are operating at a higher rate than during the early weeks of last year, and a steady demand exists for various tools on replacement account. Many machinery builders experienced a fairly satisfactory year chiefly on account of large orders placed for electrical and pulp and paper mill equipment, and there is still considerable business before the trade.

It is reported that the Canadian National Railways propose to convert the Leaside locomotive repair shops at Toronto into a plant for overhauling steel cars, which will mean transferring the locomotive repair work now done at Toronto to the Stratford, Ont., and Point St. Charles shops at Montreal. The change is due to the fact that the National Railways have more locomotive shops than they require, while the Toronto district is at present without the proper facilities for doing steel car repair work.

The H. & E. Furniture Co., Milverton, Ont., is contemplating an addition to its factory and is interested in equipment.

The Skelly Electric Co., care of James Robertson, architect, Keefer Building, Montreal, will call for bids soon for the erection of a plant at Richmond, Que. Machine tools and general equipment will be purchased.

The N. A. Armstrong Co., Ltd., 7 King Street East, Toronto, is preparing plans for an addition and alterations to the factory of the National Show Case Co., Ltd., 578 Queen Street East, Toronto.

The Toronto Rail & Harbor Terminals, Ltd., is having plans prepared for a \$3,000,000 warehouse at Queen's Quay and York Street, Toronto.

The Lantz Furniture Co., 51 Main Street, Toronto, will rebuild its factory recently destroyed by fire and will purchase new wood-working equipment.

Pacific Coast

SAN FRANCISCO, Jan. 13.

PLANS are being considered by the American Can Co., Third Avenue and Twenty-second Street, San Francisco, for a new works at Sacramento, Cal., to cost \$1,000,000. Construction will begin in the spring. The engineering department of the company will be in charge. Headquarters are at 120 Broadway, New York.

The Electrical Products Corporation, 1136 West Sixteenth Street, Los Angeles, has awarded a general contract to Charles Bushlen, 1128 West Sixteenth Street, for a new one-story plant, 50 x 167 ft. Frank L. Stiff, 1251 Fourth Avenue, is architect.

The County Board of Education, Chamber of Commerce Building, Los Angeles, has plans for a one-story manual training shop building at the high school at Van Nuys, near Los Angeles, 72 x 220 ft. A one-story boiler plant, 30 x 40 ft., will also be built. Otto H. Neher, Insurance Exchange Building, Los Angeles, is architect.

The Pioneer Fruit Co., Ceres, Cal., is planning the construction of an ice and precooking plant to cost \$50,000 with machinery.

The Angeles Furniture Mfg. Co., 931 East Pico Street, Los Angeles, has plans for a new two-story factory, 180 x 500 ft., to cost about \$150,000. C. J. Smale, 509 South West-ern Avenue, is architect.

The Harbor Island Brass Foundry, 3444 Thirteenth Avenue, Southwest, Seattle, is considering plans for a one-story foundry addition, 40 x 129 ft., at 2934 Thirteenth Avenue, Southwest.

The St. Helens Pulp & Paper Co., St. Helens, Ore., organized recently by W. P. Hawley, president Oregon City Paper Mills, Oregon City, Ore., has awarded a general contract to the Guthrie Co., Sherlock Building, Portland, for the first unit of its proposed mill to cost \$1,000,000 of which amount more than one-half will be expended for machinery.

The Utah Stucco Products Co., 920 South Sixth Street, West, Salt Lake City, Utah, has plans for a one-story addition, 30 x 50 ft., including improvements in the present factory. Additional equipment will be installed.

The City Council, White Salmon, Wash., plans the installation of pumping machinery and auxiliary equipment in connection with proposed extensions and improvements in the municipal waterworks. The entire project will cost close to \$75,000. Floyd Allen, Railway Exchange Building, Portland, Ore., is engineer.

The Pacific Gas & Electric Co., 245 Market Street, San Francisco, is said to have preliminary plans for a proposed hydroelectric power development on the Stanislaus River, near Melones, Cal., for an initial capacity of 36,000 hp. The project will be carried out in connection with a 1926 expansion program to cost \$25,000,000.

Officials of the Crown Willamette Paper Co., 248 Battery Street, San Francisco, have organized a new company of like name under Delaware laws to take over and expand the present organization, at the same time acquiring a controlling interest in the Pacific Mills, Ltd., British Columbia, holding properties in Washington, Oregon and California. The organizations will be consolidated. The new company is disposing of a preferred stock issue of \$20,000,000, a portion of the proceeds to be used for expansion. The Crown Willamette company will soon begin the construction of a new mill in Oregon. Louis Bloch is president of the new company.

The Advance Auto Body Works, Los Angeles, will erect a new plant at Mission Road and Macy Street, with main building, two stories, 125 x 155 ft., and adjoining structure, 30 x 40 ft., to cost \$125,000 with equipment. Henry E. Bean, Central Building, is architect.

The Elkeles Venetian Blind Co., 733 South Hope Street, Los Angeles, has been organized with capital stock of \$50,000 to manufacture and sell venetian blinds to the trade of the Pacific Coast States. The company is controlled and managed by E. H. Elkeles, Inc., "The Blind Man," manufacturer of window shades in Los Angeles. The officers are E. H. Elkeles, president; R. P. Schuster, vice-president, and M. C. Kuns, secretary.

Foreign

THE Government of Finland, Water Power Department, is asking bids for copper cable, steel-core aluminum cable, steel ground wire, insulator hardware, suspension insulators, etc., for use in connection with its proposed 120,000-volt transmission line for the Imatra hydroelectric power project. Bids are to be mailed before March 1. Specifications available at the department noted at Helsinki, Finland, and for inspection at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington.

The Mexican Panuco Oil Co., 40 Wall Street, New York, has acquired 46 concessions in the Maracaibo oil district of Venezuela, totaling 1,100,000 acres, and plans the early development of a portion of the lands, with the construction of storage and distributing plants. The initial work is reported to cost more than \$1,500,000.

The Bureau of Foreign and Domestic Commerce, Washington, has information regarding a company at Amsterdam, The Netherlands, which plans the construction of a sugar refinery in the Dutch East Indies, reference Batavia 35 X.

The American-Belgian Chamber of Commerce in Belgium, 48 Rue de Naples, Brussels, Belgium, has received an inquiry from a Belgian company in the market for American printing and typographical machines.

The Guantanamo Sugar Co., Guantanamo, Province of Oriente, Cuba, is said to be considering plans for rebuilding the portion of its sugar mill, known as Central Los Canos, recently destroyed by fire, with loss reported at more than \$200,000. The plant had a grinding capacity of about 100,000 bags per season.

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Current Metal Prices

On Small Lots, Delivered from Stocks, New York

THESE prices are given for the convenience of small-lot buyers whose requirements do not run into mill-size orders.

Only base prices can be listed in some cases, due to limits of space; other items of a given group are deducible from the base price.

The prices which are quoted below are those at which small lots may be bought, whether from jobbers' or other stocks.

Complete market reports and prices on large shipments from mills will be found elsewhere under "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates		Per Lb.
Bars:		
Refined iron bars, base price	.....	3.24c.
Swedish charcoal iron bars, base	.....	7.00c. to 7.25c.
Soft steel bars, base price	.....	3.24c.
Hoops, base price	.....	4.49c.
Bands, base price	.....	3.99c.
Beams and channels, angles and tees, 3 in. x 1/4 in. and larger, base	.....	3.34c.
Channels, angles and tees under 3 in. x 1/4 in. base	.....	3.24c.
Steel plates, 1/4 in. and heavier	.....	3.34c.

Merchant Steel		Per Lb.
Tire, 1 1/2 x 1/2 in. and larger	.....	3.30c.
(Smooth finish, 1 to 2 1/2 x 1/4 in. and larger)	.....	3.65c.
Toe-calk, 1/2 x 3/8 in. and larger	.....	4.20c.
Cold-rolled strip, soft and quarter hard	.....	6.25c.
Open-hearth spring steel	.....	4.50c. to 7.00c.
Shafting and Screw Stock:		
Rounds and hex.	.....	4.00c. to 5.00c.
Squares and flats	.....	4.50c. to 5.50c.
Standard tool steel, base price	.....	12.00c.
Extra tool steel	.....	15.00c. to 18.00c.
Special tool steel	.....	20.00c. to 23.00c.
High-speed steel, 18 per cent tungsten	.....	70c.

Sheets		Per Lb.
Blue Annealed		
No. 10	.....	3.89c.
No. 12	.....	3.94c.
No. 14	.....	3.99c.
No. 16	.....	4.09c.

<i>Box Annealed—Black</i>		
	Soft Steel	Long Tern
	C. R. One Pass	Sheets
	Per Lb.	Per Lb.
Nos. 18 to 20	3.95c. to 4.10c.	5.75c.
Nos. 22 and 24	4.20c. to 4.35c.	5.90c.
No. 26	4.25c. to 4.40c.	6.05c.
No. 28*	4.35c. to 4.50c.	6.35c.
No. 30	4.55c. to 4.70c.	6.85c.

Galvanized		Per Lb.
No. 14	.....	4.45c. to 4.60c.
No. 16	.....	4.60c. to 4.75c.
Nos. 18 and 20	.....	4.75c. to 4.90c.
Nos. 22 and 24	.....	4.90c. to 5.05c.
No. 26	.....	5.05c. to 5.20c.
No. 28*	.....	5.35c. to 5.50c.
No. 30	.....	5.85c. to 6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe		Standard Steel		Wrought Iron	
		Black Galv.		Black Galv.	
1/2 in. Butt.	46	29	1/2 in. Butt.	4	+19
3/4 in. Butt.	51	37	3/4 in. Butt.	11	+9
1-3 in. Butt.	53	39	1-1 1/2 in. Butt.	14	+6
2 1/2-6 in. Lap.	48	35	2-in. Lap.	5	+14
7 & 8 in. Lap.	44	17	3-6 in. Lap.	11	+6
11 & 12 in. Lap.	37	12	7-12 in. Lap.	3	+16

Bolts and Screws	
Machine bolts, cut thread, 40 and 10 per cent off list	
Carriage bolts, cut thread, 30 and 10 per cent off list	
Coach screws, 40 and 10 per cent off list	
Wood screws, flat head iron,	
80, 20, 10 and 10 per cent off list	
Steel Wire	
BASE PRICE† ON NO. 9 GAGE AND COARSE	
	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE		
High brass sheet	.....	19 1/4c. to 20 1/4c.
High brass wire	.....	19 5/8c. to 20 5/8c.
Brass rods	.....	16 7/8c. to 17 7/8c.
Brass tube, brazed	.....	27 1/4c. to 28 1/4c.
Brass tube, seamless	.....	23 3/4c. to 24 3/4c.
Copper tube, seamless	.....	24 1/4c. to 25 1/4c.

Copper Sheets

Sheet copper, hot rolled, 22 1/2c. to 23 1/2c. per lb. base.	
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.	

Tin Plates

Bright Tin		Coke—14x20		Prime	Seconds
Grade "AAA"	Grade "A"				
Charcoal 14x20	Charcoal 14x20			80 lb.	\$6.15
IC..\$11.25	\$8.85			90 lb.	6.30
IX.. 12.85	10.85			100 lb.	6.45
IXX.. 14.40	12.55			IC..	6.65
IXXX.. 15.75	13.85			IX..	7.85
IXXXX.. 17.00	15.05			IXX..	9.00
				IXXX..	10.35
				IXXXX..	11.35

Terne Plates

14 x 20		
IC—8-lb. coating	.....	\$7.75 to \$8.00
IC—20-lb. coating	.....	10.25 to 10.50
IC—30-lb. coating	.....	12.00 to 12.50
IC—40-lb. coating	.....	13.65 to 13.75
Fire-door stock	.....	10.50

Tin

Straits, pig	.....	64 1/2c. to 65c.
Bar	.....	68 1/2c. to 69c.

Copper

Lake ingot	.....	15 c.
Electrolytic	.....	14 3/4c.
Casting	.....	14 1/2c.

Spelter and Sheet Zinc

Western spelter	.....	9 3/4c. to 10c.
Sheet zinc, No. 9 base, casks	.....	13 1/4c.; open, 13 3/4c.

Lead and Solder*

American pig lead	.....	10 1/4c. to 11 1/4c.
Bar lead	.....	12 1/4c. to 13 1/4c.
Solder, 1/2 and 1/2 guaranteed	.....	39 3/4c.
No. 1 solder	.....	36 3/4c.
Refined solder	.....	30 1/4c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	68c. to 72c.
Commercial grade, per lb.	30c. to 35c.

Antimony

Asiatic	26c. to 27c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), ingots for remelting, per lb.	30c. to 30 1/2c.
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Old Metals

The market is unsettled, in sympathy with new metals. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	12.00
Copper, heavy wire	11.75
Copper, light bottoms	9.50
Brass, heavy	7.00
Brass, light	6.00
Heavy machine composition	8.75
No. 1 yellow brass turnings	8.50
No. 1 red brass or composition turnings	8.00
Lead, heavy	8.00
Lead, tea	6.00
Zinc	5.25
Cast aluminum	19.50
Sheet aluminum	19.50